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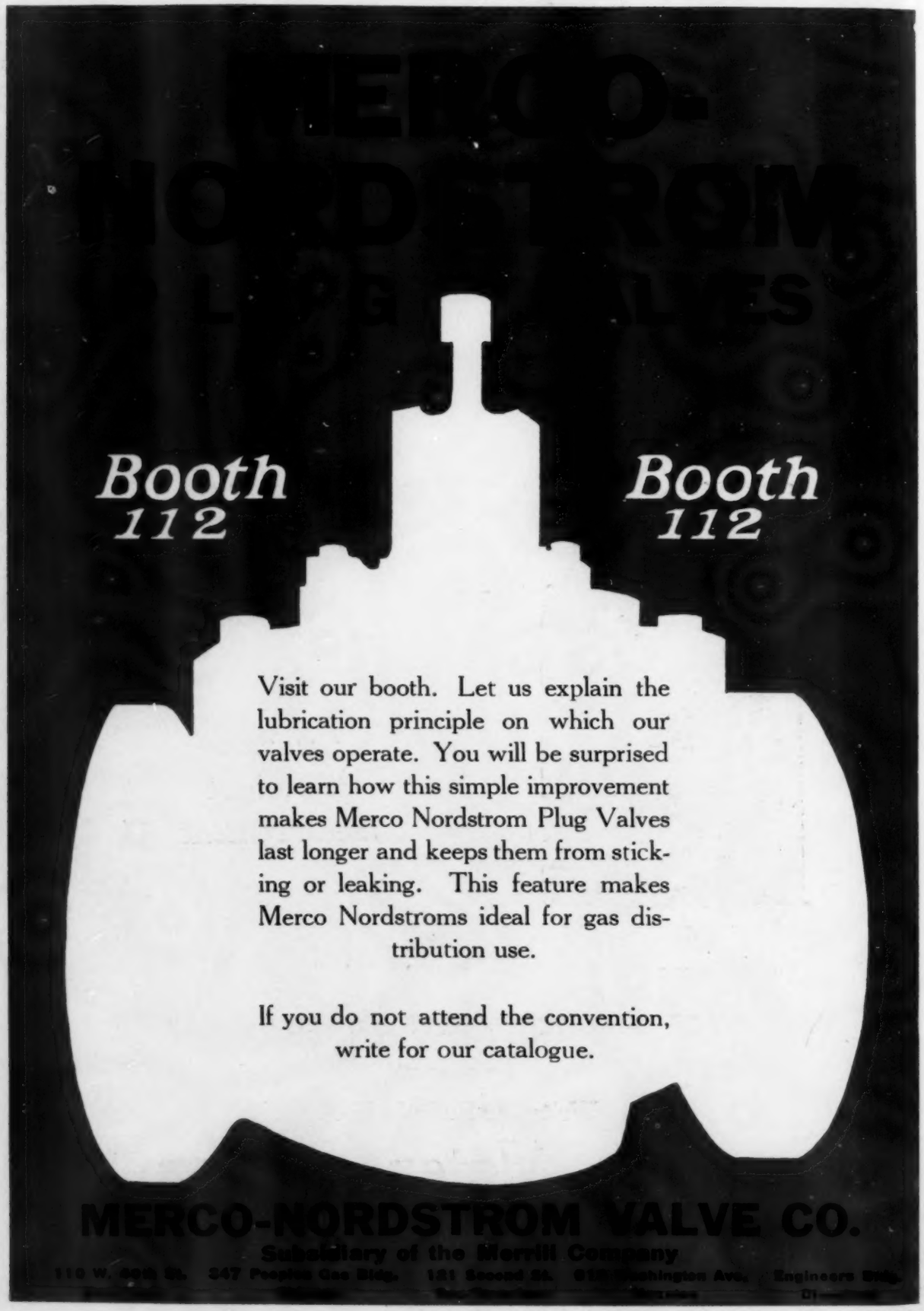
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Chicago Chosen for 1927 Convention

Last General Session Discusses Rates and Finance

The Ninth Annual Convention of the American Gas Association will be held in Chicago, early in October, according to recommendation made yesterday morning by the convention committee, and accepted by the general body. Cleveland was second choice.

All reports of committees were accepted as read. The committee on resolutions presented two resolutions. A request for the organization of a woman's section was declared unconstitutional. A request coming from the Commercial Section that all gas companies be asked to sell only appliances carrying the Blue Star of approval, except where the laboratory had not been able to test them, was submitted without comment.

Rates

Two extremely interesting papers were read. The first was on the topic, "Building a Rate to Build the Business," by C. S. Reed, consulting engineer of New York.

Mr. Reed constructed a hypothetical building, the rate structure of the average gas company. "The foundation on one side bears no weight," he said. "The foundation on another side bears little weight, while the foundation on the other two sides must make up for the losses and deficiencies of the first two. In other words, there are two classes of gas business which are operating at a loss to the companies."

His solution for this problem was a revised scale of rates, and er gas rate, and thus benefit the small consumer, and also lighten more diversity in gas rates, the general adoption of the three-part rate, and the adoption of a surcharge for service. The use of the surcharge to take care of service work would permit a low-

C. S. REED,
New York

the burden of the large consumer, who at the present time bears the losses which the small consumer makes necessary.

Mr. Reed did not suggest that this plan be put into operation suddenly, but suggested rather that it be tried out on a small group of customers until its success and popularity was assured, then explained to a group of employees and their reactions noted, and then, and not until then, presented to the officers of the company for their consideration.

Finance and Public Relations

The Accounting Section Chairman, De Witt Clinton, presented Channing H. Cox, vice-president of the First National Bank of Boston, and for four years Governor of Massachusetts, who spoke on "Finance and Public Relations."

The problem of financing gas companies and company expansions is important, he believes, for students have told him that the business done by gas men will treble in the next 25 years.

"Utility companies have a method of financing open to them which industrial firms can not use with such freedom. The stable character of utility companies, and the constant supervision to which they are subject make bonds one of the most popular methods for financing them. Industrial companies on the other hand, whose profits are larger because the supervision is less, can reinvest the surplus caused by their larger earnings.

"The condition of the money market frequently makes long-term bonds undesirable, however, due to the high interest. Then the proper form of financing for utility companies is the use of short-term notes or bonds. When the time for refunding comes, the money market may be improved.

"Open end mortgages are good for financing. Sometimes, a gas company finds it well to finance by the sale of preferred stock or other securities to its customers and employees, thus procuring capital and fostering good will at the same time. This method should only be employed when the regular payment of dividends is assured."

B. J. Mullaney Addresses Meeting

General sessions was adjourned by B. J. Mullaney with an inspirational short talk.

"The difference in the attitude of gas men this year is important," he said. "They are no longer in doubt. The industry has a new grip on itself, a new spirit of aggressiveness.

"We owe much to President Abell and to the work of Major Forward and the headquarters' staff. Their constant efforts have made the success of this convention and the successes of the industry possible.

President Abell adjourned the session until October, 1927.

Alexander Forward Made Managing Director

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At the meeting of the Executive Board of the American Gas Association in Atlantic City the week of the Eighth Annual Convention, Alexander Forward, who has been Secretary-Manager, was made Managing Director of the Association.

Mr. Forward succeeded Oscar H. Fogg as Secretary-Manager of the Association.

Mrs. M. P. Wardman Active in Home Service Work at the Convention

Miss Marjorie Pidgeon Wardman, Home Service Director of the Brooklyn Borough Gas Co., was chairman of the program of the Home Service Committee and has worked untiringly for its success. Mrs. Wardman was hostess on Tuesday and Thursday afternoons at the tea served to the ladies in the ballroom on the Pier. The good cookies used were recipes of Mrs. Wardman.

Her work at the booth in seeing that the work went smoothly and each girl was given an opportunity to do her bit was appreciated.

We know Mrs. Wardman better perhaps as the "Girl in White," the title she created for herself when she organized her Home Service Department for Brooklyn Borough Gas Co.

*Gas Production Steadily Increasing

Secretary-Manager Alexander Forward Reports on Trend of Gas Manufacture

The president will, most appropriately, sketch the activities of the association during the year just closed. The record which will then be before you could not have been approximated, much less accomplished, without the strong and able leadership which we have enjoyed and without the thorough and loyal co-operation and earnest work of every member. This spirit which, in my judgment, is not even equalled, let alone excelled, by any other organization, inspires and makes pleasant the work of your executive officer and headquarters' staff.

Membership

As of September 30, 1926, our membership stands as follows:

547 Gas Companies
21 Holding Companies
416 Manufacturer Companies
3,242 Individual Active Members
4 Honorary Members

The striking feature of the membership showing is the large increase in manufacturer companies on the rolls of the association. The interest shown by this class of membership, demonstrated by the wonderful exhibit on this Pier and support of our Testing Laboratory, is most gratifying.

Statistics

I have again to acknowledge the co-operation given us by gas companies generally in furnishing us the statistics we need and must have in order to meet the demands. It is further proof of the standing our industry enjoys in the financial world that we are

	1925	1924	Increase
Gas Produced			
Water Gas	232,000,000	237,097,000	5,097,000
Coal Gas	83,700,000	80,202,000	3,498,000
Oil Gas	28,700,000	27,466,000	1,234,000
	324,400,000	324,765,000	
Gas Purchased			
Coke Oven Gas	76,600,000	63,350,000	13,250,000
Natural Gas	56,100,000	53,266,000	2,834,000
	132,700,000	116,616,000	16,084,000
Total Produced and Purchased	457,100,000	441,381,000	15,719,000
Gas Sales			
Domestic Uses	300,500,000	290,880,300	9,619,700
Industrial Uses	91,600,000	85,575,225	6,024,775
Commercial Uses	21,400,000	20,422,475	977,525
Miscellaneous Uses	7,900,000	8,322,000	422,000
Total Sales	421,400,000	405,200,000	
Gross Revenue			
Sales of Gas	$452,000,000	$438,000,000	$14,000,000
Customers	10,600,000	10,200,000	400,000
Meters	10,825,000	10,400,000	425,000

* Presented at the First General Session, American Gas Association Convention, Atlantic City, October 12, 1926.

called upon with increasing frequency for statistics, largely from financial houses, financial newspapers and similar sources and it is manifest these agencies should be kept informed of our progress. There are still some companies which have not fully realized the importance of this branch of our endeavors and we hope that we shall be able to make an even better showing in this respect next year. I believe that every gas company now fully understands that all such information is held as confidential and released only in respect to totals.

The foregoing table compares a number of the statistical items throughout our territory in the years 1925 and 1924:

Consideration of the major items included in the statistics for 1925, when we had the largest business in our history, indicates some interesting trends. The total gas produced and purchased for distribution by the manufactured gas industry in 1925 amounted to 457,100,000,000 cubic feet, an increase of approximately 16 billion feet over the year 1924. Manifestly, the income of our industry is very much greater than the 452 million dollars shown in the table, which does not include income from the sale of valuable by-products, which by recovery, we add to the resources of the country.

Larger purchases of coke oven and natural gas is reflected in lesser increase in the use of solid fuel and gas oil by our industry. The 1925 statistics indicate a relatively greater use of coke and a decreasing use of anthracite. The gas oil used reported amounts to some 35,000,000 gallons less than that reported for 1924. Uncertainty as to the future supply and price of gas oil should tend to accelerate the reduction in its use in the future.

Coal Gas and Water Gas

Many of our people believe that coal gas will eventually supplant carburetted water gas as a major factor in the country's gas production. Heretofore the figures have not borne out this prediction, except in the rapid increase in the amount of by-product coke oven gas distributed. However, in 1925, for the first time, there was recorded a slight reduction (5 billion cubic feet) in the amount of carburetted water gas produced. The production of coal gas increased 3,498,000,000 cubic feet and oil gas produced increased 1,234,000,000 cubic feet. Even with this reduction, however, carburetted water gas for 1925 still represents more than 71 per cent of the total gas actually produced (as against 74 per cent in 1923 as stated in my 1924 report), and 51 per cent of all kinds of gas produced and purchased by the industry.

In 1925, 403,800 new customers were connected to our mains; 6,000 additional miles of main were laid and 425,000 additional meters connected.

Reports reaching headquarters from all parts of the country indicate that 1926 will be a banner year in increased output.

Organization

The Executive Board has just informed our retiring president what they think of him. There has been no day in two years when Mr. Abell has not given me all of the time and attention for the association which I have asked. Further, I may safely say that no day has passed in that period when he has not given constructive thought to the problems of the industry and to the activities of our organization. He has made a record of service and leadership of which he may well be proud and which should afford him the keenest satisfaction.

Mr. J. W. West, Jr., who has been a member of Headquarters' Staff since January 1, 1925, succeeded Mr. R. L. Burdick as secretary of the Commercial Section on September 1 last. Mr. C. S. Reed, formerly of H. L. Doherty & Co., has been rate consultant at headquarters since August 1, 1926.

To name the members of the staff and employes at headquarters who have during the year rendered loyal and capable service, would be to read the entire list. I make earnest acknowledgment of the support I have received from them at all times.

Incineration Interests Commercial Men

Impromptu Home Service Defense In Final Session

The concluding session of the Commercial Section of the A. G. A., opened with the chairman, R. S. Canniff, introducing the first speaker, H. A. Naulin, of Milwaukee, who prefaced his set speech with excerpts from the report of his Committee on Incineration. He spoke on "Modernizing the Basement."

J. P. Haulan, Public Service Utilities of Newark, paid a glowing tribute at this point to the work of Mr. Canniff as chairman.

Selling the Speculative Builder

Bernard Johnson, of Chicago, discussed "Selling the Speculative Builder." His main suggestion urged the necessity of persuading that same builder that complete gas equipment increases the saleability of his product.

The order of the program was here changed and Messrs. Charles H. O'Donnell, Lowell Gas Light Co., of Lowell, Mass.; J. B. Wilson, Western United Gas & Electric Co., of Aurora, Ill., and George C. Klopf, North Shore Gas Co., of Chicago, jointly expounded the merits of the Blue Star Plan.

Fundamentally this is a concerted effort to stimulate and increase the consumption of gas. All its effects lead up to this result.

The plan proposes to secure this result along lines diverse in the beginning yet mutually convergent in the end.

Educational Work

In course of time it is first proposed to educate architects, realtors, contractors and builders (particularly of the speculative type) to the desirability of providing ample and suitable connections and ventilation ducts for a complete equipment with gas appliances. This in itself pre-

sents a problem not easy of solution, when one considers the tendency to skimp materials and reduce construction costs on low-priced speculative building projects.

A complementary effort will endeavor to overcome the disaffection produced in consumers by the inadequate and inefficient service given by appliances manufactured solely with an eye to capture the business handled on a price-only basis. It is hoped ultimately that the stamp of approval of the A. G. A. Testing Laboratories will be the "Sterling Mark" for all gas appliances.

Service Important

Convenient, trouble-free service will increase the demand for gas appliances and in that increase the plumbing and heating contractors and gas-appliance dealers will share with the gas producers increased prosperity.

One aim that will be kept in view is the reduction of total cost in home gas equipment by unit installation, i.e. putting in all the appliances in one job rather than piece-meal. With this saving in mind the local gas company will decide on what constitutes a minimum requirement for the average home.

Defense of Home Service

Regular proceedings were suspended to permit of a spirited defense of Home Service by Mr. Mullaney, Peoples Gas Light & Coke Co., of Chicago, supported by Mrs. Anna J. Peterson, Peoples Gas Light & Coke Co., of Chicago; Miss Ada Bessie Swann, Public Service Elec. & Gas Co., of Newark.

"Reaching the Architect," was covered by A. E. Hansen, of New York, and H. D. Valentine, of the Peoples Gas Light & Coke Co., of Chicago, discussed "Recent Developments in Refrigeration."

A. G. A. Laboratory Gains Merited Approval

Director Conner Outlines Its Work and Its Progress

The salvation of future business for the gas appliance manufacturer is the American Gas Association's Testing Laboratory at Cleveland, Ohio, according to R. M. Conner, director of this institution.

In an interview given to a representative of the American Gas Journal yesterday afternoon, Mr. Conner predicted that within a few years, as a result of a campaign to educate the general public to the importance of using tested and approved gas appliances, gas ranges, heaters, and other apparatus used in the home and in industrial plants will have to exhibit the stamp of the A. G. A. laboratories just as foodstuffs today must show the Pure Food mark.

"The A. G. A. Laboratory at Cleveland," says Mr. Connor, "has already more than repaid for itself in the protection of public health and safety. In similar manner it has already shown its value to the manufacturer in bringing about a standardization of products, an elimination of price cutting wars and is a general benefit to the industry as a result of the public's ever-growing confidence in gas appliances.

Laboratory Started in 1925

"The Laboratory was first opened on June 1, 1925. Today it represents an investment of over $100,000. Its location, in Cleveland, places it in an ideal location inasmuch as Cleveland is the largest manufacturing center of gas appliances in the country. In Cleveland is also found several different forms of gas which makes it possible for us to duplicate, in the laboratory, gas conditions found in the country.

"The establishment of the Laboratory came about as the result of the demands of the gas industry and the public, along with government interests, for products which would result in improved quality and greater safety to the users. The institution has recently issued extensive lists of approved ranges, space heaters and tubing. At the present time we are doing research work on various types of water heaters and house heating appliances and within a short time lists of products along these lines and which have passed the tests will be announced.

Manufacturers Are Sold on Laboratory

"The manufacturer is taking to the Laboratory like the proverbial 'duck to water.' The better type of manufacturer is insisting on laboratory tests of his products. They realize that with the approval stamp comes a mark which the public wants and will soon demand. The catch-penny firm who seeks to put out the cheap product for quick profit and without thought of safety or service does not want a laboratory test. He knows his product cannot bear comparison. But the reliable firms are securing the approval mark, changing their products, if necessary, to meet the requirements and then telling the public about the quality of their products. An inspection of the wonderful exhibition here this week will disclose a great many of the gas range and other exhibitors displaying the Blue Star mark in a prominent place in their booths.

The Organization

"Today we have about twenty-five persons employed in the laboratory and office. Within a short time this force will, of necessity, be increased. It is a natural step, for each week will find more and more manufacturers asking for tests. The Blue Star will be an asset in their merchandising business and the manufacturer of unapproved products will, in a short time, find his business falling off with an eventual closing of the doors of his establishment.

"We should all be proud of the fact that the gas business is one of the first industries to establish an impartial national research and testing organization for the benefit of all its people and dedicated to the improvement of public service. By so doing it has met in part, its obligation to the American people with an aim to producing the most convenient, economical and safe utilization of its products."

Home Service in Illinois

Mrs. Carrie Dwelle, Home Service director of Illinois Power and Light Corp. (Southern Division) tells of the real work Home Service is doing for her Company. The Company have very recently put gas in Wood River, Illinois. A

great number of its 20,000 population had never seen gas and were afraid to light it. This meant that the Home Service Department must not only teach women to cook with but must take the fear of gas away from them.

One family signed up for Gas. The man of the family suddenly changed his mind. The Company requested his reason for doing so. He said: "If I take my coal range out of the kitchen I won't have any place to spit in this winter."

Distribution Problems Interest Technical Men

Final Meeting of Section Held Yesterday

Distribution problems occupied the attention of the technical men in their last meeting of the 1926 Convention yesterday afternoon.

The first paper on the program was a very comprehensive discussion of the dehydration of manufactured gas by F. W. Sperr, Jr., The Koppers Co., Pittsburgh, Pa. Mr. Sperr's paper described the principal methods that are available for the dehydration of manufactured gas and drew the following conclusions.

1. To be effective in eliminating the injurious effects of moisture, the gas should, in most cases, be dried to a dew point of 30° F. Further dehydration should not usually be necessary.

2. There are several feasible methods which can probably be applied at a cost not exceeding 1c per thousand cubic feet of gas, including fixed charges.

3. In a system of medium size, the direct net financial saving due to dehydration might be in the neighborhood of 2c per thousand cubic feet. Dehydration would also have great indirect value on account of better service and greater advantage in competition.

4. The disadvantages of dehydration should not be serious.

5. In systems distributing gas which produces little or no oil condensate, the injection of a suitable petroleum oil as fog or vapor should be adopted, irrespective of whether dehydration is practiced or not. Extremely small quantities of oil (3 to 5 gallons per million cubic feet) are sufficient and the expense is insignificant.

Other Details

This paper discusses in detail the disadvantages of moist gas corrosion in the distribution system as well as the direct proof of the advantages of dehydration of gas. It also went into the extent to which the gas should be dehydrated, the methods of dehydration a discussion of the question as to whether or not dehydration can be accomplished at a sufficiently low cost to justify its adoption, and whether or not dehydration involves any disadvantages outside of extra attention and operating cost.

Dehydration methods described included compression, refrigeration, treatment with hygroscopic substances and treatment with absorbents.

Measurement of Large Volume of Gas and Distribution Report

Mr. Sperr's paper was followed by the report of the Committee on the measurement of large volumes of gas, M. E. Benesh, The People's Gas Light & Coke Co., Chairman. The last report was that of the Distribution Committee, D. A. Powell, Milwaukee Gas Light Co., Milwaukee, Wis., Chairman.

Miss Swann Is Happy—And She Has Good Reason to Be

What makes Miss Ada Bessie Swann happy? Just get her to talk and in half a second you'll find out. She'll say, "If you had watched a little seed grow from a tiny bud to a big lovely, sweet blossom, wouldn't you be proud and happy too?"

Well, that's what Miss Swann thinks of Home Service Committee work of the American Gas Association.

"Just three years ago," Miss Swann says, "think of it, only fourteen Gas Companies actually had active Home Service Departments—today at this Eighth Annual Convention ninety-two Gas Companies are operating departments.

What must a girl do to get into a Home Service Department we asked, it seems so popular?

"First," Miss Swann says, "SHE MUST HAVE VISION—vision broad and wide of the big work her company offers her, because the gas industry is so important to the successful private and business life of the community her company serves. She must not only be interested in gas as a fuel for cooking, but in gas as it gives other services to the home, that promote better health, more comfort and happiness.

"Of course Home Service girls are happy," says Miss Swann, "because they who serve most are happiest and a sincere Home Service girl gives of herself without stint in her desire to do her job well, helping truly the homemaker and her company."

Accountants Discuss Distribution Costs

Last Meeting of Section Devoted to Varied Matters

The final meeting of the Accounting Section at the 1926 Convention was held yesterday afternoon in the Hotel Traymore.

The meeting opened with the report of the committee on storeroom accounting and inventory taking, of which F. H. Patterson, Rochester Gas and Electric Corp., Rochester, N. Y., was chairman. This report was divided into three parts, viz., Physical layout of storerooms, written by W. W. McLane, Public Service Electric & Gas Co., Newark, N. J.; stores records and accounting methods by F. J. Bischoff, Jr., Consolidated Gas Co., New York City, and inventory taking by C. J. Hill, The People's Gas Light & Coke Co., Chicago.

Physical Layout of Storeroom

The question is discussed as to whether or not a company should adopt the practice of centralizing all its stores at one location or decentralize in more than one storeroom. This depends on the size of the company and the character of the territory served. Sometimes a combination of the two systems is better than either one of them. It is a matter for the company itself to decide.

The report goes into detail on the site of the storeroom, the external and internal facilities and the general plan. It is pointed out as well that the prime fact to be borne in mind in the physical layout of the storeroom is that of economical operation in the handling of the various kinds of material which are received for early distribution.

Store Records and Accounting Methods

This portion of the report deals with various forms that are employed in making stores records and the general accounting system in vogue in taking care of the purchase of stores. It is well worth mentioning the conclusion that is reached in this report to the effect that no one system can be recommended to fit the requirements of every company. The main principle on which to work in this connection is to insure complete control of the various classes of materials and supplies by means of stock records with the minimum of effort and expense.

Inventory Taking

The final portion of the report is concerned with inventory taking. The importance of taking stock is discussed and two methods are mentioned. Thus some companies will check the stock in bins every day and compare this with the balances in the stores ledgers. Others adopt the semi-annual or annual method. There is no objection to taking stock frequently and the essential point to be remembered is that the stock taking should be often enough to show whether there are any great discrepancies between the physical and book records.

Various Costs in Distribution Work

The second item on the program was the report of the committee on cost of operating motors and mechanical equipment in distribution work. The report was made through the Chairman of the committee, J. Henderson Smith, of The United Gas Improvement Co., Philadelphia.

This report went into great detail on the method of determining the cost of operating motor vehicles and outlined the various items that must be included under transportation expense. In the second part it discussed the cost of operating mechanical equipment in distribution work. The report contained a number of convenient forms on which the various cost items could be kept.

Uniform Classification of Accounts and State Representatives Work

The next report was read by W. J. Meyers, United Electric Light & Power Co., New York City, Chairman of the Committee on Uniform Classification of Accounts. This was followed by the report of the State Representatives Committee, A. L. Tossell, Chairman, The People's Gas Light & Coke Co., Chicago.

G. W. Allen Speaks to Atlantic City High School Students

The pupils attending the Junior High School of Atlantic City, N. J., were given a treat in the form of an address on the story of a Lump of Coal, by G. W. Allen, Secretary-Treasurer of the Canadian Gas Association, on October 13, 1926, during the American Gas Convention.

Mr. Allen pictured the early development of coal from plant and vegetable life, and by easy steps took the children through the later developments of mining and utilization and use of this remarkable fuel.

By-Products

Great stress was laid on the fact that coal constained thousands of valuable by-products, and that only through carbonization could the present and coming generations obtain the real wealth hidden within this until lately, little understood and appreciated fuel.

Coke and gas were the logical fuels of the future, and as time went on greater utilization would be made of the marvelous potentialities contained in these primary by-products.

Symposium Draws Crowd

Public Relations Meeting Listens to Addresses—Singing and Dancing Enliven Gathering

The Public Relations Symposium held Wednesday evening drew a good attendance of gas men and their wives. Whether the wives came to hear the solos of Miss Anna Case, or to listen to the talks of Henry Gordon Wells and Frank Milhollan, is difficult to say.

Mr. Wells, who is the second vice-president of the National Association of Railroad and Utility Engineers and who is distinguished in many other ways, was the first speaker of the evening. This is the second time he has addressed the American Gas Association. The previous occasion was at the annual convention three years ago.

Regulation and Management Differ

"Regulation and management are not the same," he said. "While the aim of both may be the same and should be the same, the furnishing of adequate and reasonable service at the lowest possible cost consistent therewith, yet regulation should not intrude on management. Proper management on the other hand leaves less to regulation. Regulation enters the field only where the law authorizes it and in the case of service only when the management has fallen down.

"This has been so recognized by your companies in recent years that the regulatory bodies have had less and less to do outside of the requirements of law in seeing that the proper service is given the public.

"You have had broad minded leaders who are earnestly seeking a constructive policy in order to maintain the highest type of public service and a standard of proper public relations. Your desire seems to be to locate and remove every point of friction between your institutions and the public."

The Utility and the Commission

The second speaker of the evening, Frank Milhollan, who has been president of the Board of Railroad Engineers of North

Dakota for eight years, who is president of the North Dakota Safety Council, and president of the State Federation of Labor, spoke on "The Utility and the Commission."

"As State Commissioners," said Mr. Milhollan, "charged with the duty of regulating the rates, charges and practices of public service corporations, we are daily brought into contact with both the patrons and the public utilities.

"We are endeavoring to see that adequate service is furnished to millions of consumers and at the same time to safeguard the interests of those who have invested capital, without which there can be no service.

"That there is a great future for the gas industry is evident from the manner in which the industry has overcome obstacles which not so long ago seemed insurmountable."

The addresses delivered at this symposium were interspersed with songs rendered by Miss Anna Case, and after Mr. Milhollan's talk, the assemblage adjourned to the Ball Room on the Pier where a dance was held.

Interesting Industrial Installations Described

Last Meeting Industrial Gas Section Also Deals With Educational Matters

Descriptions of noteworthy industrial gas installations and educational matters engaged the attention of the industrial men in their last session, held yesterday on the Million Dollar Pier.

H. O. Loebell spoke extemporaneously on the report of the Speaker's Bureau. He stated that upwards of six hundred prepared speeches had been sent out to date in 1926 to business men.

The idea of these speeches is not particularly to inform the business man as to the technology of gas, etc., but rather to give him a rounded out idea that gas was the ultimate fuel.

Mr. Loebell urged each industrial fuel man to endeavor to address at least one commercial body during the coming year; such as Kiwanis, Rotary, etc.

Rotary Carbonizing Machines

F. S. O'Neill, Works Manager, Link Belt Co., Indianapolis, read a very ably prepared paper on the "Description of Installation of Rotary Carbonizing Machines" in his plant.

He went on to show how that the rotary kiln gives an uniformly heated charge. The overall cost per ton of material treated from results extending over six months is $27.50.

These carbonizing machines take care of case hardening and other similar heating operations. The rate of gas consumption is about 450 cu. ft. per hour and the weight of the charge is 500 pounds.

In closing Mr. O'Neill advised that they even carbonize bolts after the thread has been copper plated.

The Studebaker Installation

"Description of Installation of Continuous Heat Treatment Furnaces-Studebaker Plant, South Bend, Indiana," was the subject of a very meaty paper by Carl Lekberg, of the Northern Indiana Gas & Electric Co., South Bend. Mr. Lekberg read it in part:

The Studebaker plant has for some years been using considerable quantities of gas, but at the same time also used a large volume of oil. The problem was to supplant some at least of the oil by gas.

With the Studebaker plant about to erect a new spring and carburizing shop it was felt the opportune time had arrived actively to push the gas question. This necessitated changes in plant equipment, mains and services that would be necessary to handle the load. The rate structure was analyzed to see what could be done toward making any revisions.

Feeling the need of some expert advice from some nationally known furnace designer the Surface Combustion Company was called in.

On approaching the management of the Studebaker Company the reception was cordial but not encouraging. They were, however, open-minded and some interesting sessions ensued.

An exhaustive investigation of furnace design was pursued from the thermal as well as other angles.

Three fuels were being considered by Studebaker, electricity, gas and oil. Electricity was eliminated early and the choice lay between oil and gas.

Studebaker had not heretofore properly figured the cost of burning oil and when this was analyzed the decision was made in favor of gas.

After the spring furnaces were disposed of the carbonizing furnaces were taken up. In this case Studebaker left it to the furnace men to suggest the number and kind of furnaces, etc. The counter flow type was finally determined upon.

As with the spring furnaces the superiority of design proposed of the furnace brought the question to the point of comparative cost of gas and oil. Since this operation offered nearly a hundred percent load factor the die was cast in favor of gas.

The results from the changes in the heat treating process were saving in labor and fuel, increased production and improvement in quality and uniformity of product.

Uniformity of product can be gotten without any particular skill on the part of the furnace operators.

The gain in load was approximately eighteen million feet per month.

Educational Committee Report

The item was the report of Committee on Education of Industrial Gas Salesmen, by J. P. Leinroth, Public Service Electric & Gas Co., Newark.

While the industrial gas engineer should be one trained along engineering lines, his selection should be based largely upon his personality for selling.

He should be ultimately trained along the line of factory economics and factory cost accounting.

We are in need of real salesmen in the industrial field.

The technical phase of his training has been too greatly stressed.

A course was given in New York City in the Consolidated Gas Company's auditorium. Prominent speakers addressed the men and inspection trips were made to various plants. One hundred and seventeen men registered with an average attendance of 60.

Gas Companies! Miss Dowell Is At Your Service

Miss A. Deane Dowell, Home Service Counsellor of American Gas Association, graciously stopped her very urgent work of putting the Home Service Booth in order, to say a few interesting words:

"The object of the Home Service exhibit and display," Miss Dowell says, "is with the hope of promoting Home Service in all Gas Companies, to show the busy executive that every progressive organization must come to a Home Service Department if they are to maintain the domestic load and sales of better A. G. A. Laboratory approved appliances."

Miss Dowell is available for help in every possible way. Gas Companies are at liberty to call on her for help either in organizing new Home Service Departments or helping with ones already started. She may be reached at American Gas Association Headquarters at all times.

How's the Dust in Your Window?

If you care to educate yourself concerning what can be done along the line of concocting some real "honest-to-John" window display work wipe off your horn-rimmed glasses and stroll around to the four booths where the Consolidated Gas Co. of New York, Brooklyn Union Gas Company, Central Hudson Gas & Electric Co., and the Laclede Gas Light Co. have wrought.

Those of the Saturday night washing cult will no doubt be enthused over the description of the various ordinances against bathing the person as enacted way back when they were yelling something anent Tippecanoe and Tyler Too.

Pass next to an exhilarating scene depicting the emancipation from the coal scuttle and ash can via the gas house heating routes.

Space forbids a lengthy palaver of the other two displays but we opine that you will draw some educational nourishment from what these four companies have done. If not, as Billy Sunday says, we will eat a pole-cat for breakfast and wash it down with a stoup of Pilsener.

Automatic Gas Water Heating

Our reporter, speaking to a prominent manufacturer in the water heater business, got the following interesting story on the human side of water heating:

"Who are the people that buy automatic gas water heaters?

"What are the uses of these near-human machines?

"Are water heaters just so much iron, brass and copper or do they have a human side, too?

"Look in the order file of most any water heater company and you will find a day to day story as interesting and as vital as those that appear in your daily newspaper.

"When the Prince of Wales and his entourage visited the Japanese royal family, the great preparations included the importation of American-made automatic gas water heaters so that the prince could be sure of his daily bath.

"Baseball's Prince of Wales, Babe Ruth, and his fellow Yankees, Lazzerri, Koenig, Muesel, et al, finish each day's labor in a flood of gas hot water. So do the players at the Polo Grounds, Fenway Park, Braves Field, Shibe Field, Dunn Field, Forbes Field and many others.

"Helen Wills, tennis premier, uses gas hot water at her home courts, the Berkely, Calif., Tennis Club.

In Golfing

"Three hundred amateur and professional golfers perspired under a hot August sun for the open golf crown at the Scioto Country Club at Columbus, O. Only one could win—Bobby Jones—but all could wash away their sorrows of defeat in never-failing gas hot water.

"If you seek your amusement at the theatre or movies, you will find that gas hot water has preceded you and that it has won a permanent place in green room circles. The Manhattan Opera House in New York has automatic gas hot water service; so has the Garrick in Detroit; so do many of the Loew theatres—the Stanley theatres, too. Read the blue book of moviedom and you find automatic gas hot water service in high favor among the stars and satellites of the celluloid world. Charles Chaplin, Harold Lloyd, Douglas Fairbanks, Antonio Moreno—the gas hot water list sounds like a Will Hayes roll call with everybody present and answering "Here" for gas, the ideal fuel for water heating.

"Gas hot water serves the social man at the Elks Club, the Masonic Temples, at the Odd Fellows, the Eagles, the Moose and every other animal in the fraternal menagerie.

In Banks

"Our banks consider automatic gas heated water a preferred investment in business comfort and the roster of users from the huge Imperial Bank of Canada down to the neighborhood institution is filled with illustrious names that have made banking history.

"Today we eat bread from a gas hot water-served bakery. Our friend the barber uses it, the beauty parlors, churches, hospitals, laundries, libraries, office buildings, restaurants, hotels, stores, police and fire stations and schools.

"And in industry—aside from the normal lavatory uses of the modern manufacturing plant, we are barely scratching the surface of untold uses of thermostatically controlled, even-tempered gas heated water in industrial processes. We find it used as preheater of oil, in the manufacture of eye glasses, in mirror factories, as a part of a milk pasteurizing outfit, in the shipment of honey, in hosiery mills, in fact, wherever a constant, uniform tempered supply of hot water is needed.

Ella L. Lambert Delivers Home Service Lecture

Mrs. Ella Liner Lambert, Milwaukee Gas Light Co., Milwaukee, Wisconsin, gave an interesting and well attended lecture at the Home Service Booth at 10 a. m., Tuesday.

Brooklyn Union Men Attend Dinner

C. E. Paige Presents Company's Reward To Honor Men

The Brooklyn Union Gas Company's delegation to the convention were entertained at dinner by the company Tuesday evening. The affair was held in the Rose Room of the Hotel Traymore.

George M. Kirchmer presided at the dinner. Addresses were made by C. E. Paige, Arthur F. Staniford, vice-presidents, and C. C. Atwood, chairman of the Safety Committee of the company. Six men who were given McCarter awards yesterday were the honor guests.

Mr. Kirchmer called to the attention of the diners that this was the third dinner given at Atlantic City. He first presented Mr. Atwood who spoke of the services rendered by the honor men. Mr. A. F. Staniford, vice-president, was the next speaker. He told of the supreme satisfaction it gave him to be present and spoke glowingly of the A. G. A. convention and the exhibits. He said "he envied the honor men because of the opportunity they had had to serve humanity."

C. E. Paige Rewards Honor Men

Vice-President Clifford E. Paige then lured the honor men up back of the guests' table and presented them each with a check from their company.

"It is a wonderful thing these men have done," said Mr. Paige. "They have served humanity and it is more wonderful to know that all of our associates are prepared to perform the same services."

Mr. Paige then read a letter from Mr. James H. Jourdan, president of the company. Mr. Jourdan regretted his inability to be present. He told how proud he was of the honor men and hoped that all of the delegates would enjoy and profit by their attendance at the convention.

Gas Men Entertained by Singing

Mr. John Waldron sang several solos as did Mr. Alfred Gledhill and Mr. William Keegan and Miss A. M. Platt sang a duet. Among those present were: Mr. and Mrs. C. E. Paige, Mr. and Mrs. A. F. Staniford, Mr. and Mrs. T. P. Payne, Mr. and Mrs. George M. Kirchmer, Mr. and Mrs. George Gatehouse, Mr. and Mrs. Fraga, F. R. Wogan, Prescott B. Wiske, Mr. and Mrs. Fred Benson, Mr. and Mrs. E. C. Uhlig, Mr. and Mrs. Emil Bartel, Mr. and Mrs. Charles Young, Mr. and Mrs. George S. Bradley, Mr. and Mrs. Robert H. Staniford, Mr. and Mrs. Henry Behrman, Miss M. L. Grant, Miss Quinn, Mrs. Callahan, Mr. and Mrs. Gallo, Mr. and Mrs. Colberg, James E. Mulholland, Mr. and Mrs. John Grogan, A. Schaaf, Joseph Platt, Perry Conklin, Fred Roesch, John Garland, Miss A. M. Sullivan, L. S. Stiles, Miss Laugh, Ray S. Green and Miss Mary Breen, Theo. Merkl, Edward Berry, O. Chichester, Oscar Woller, Charles Waddington, Reginald Underhill, Albert Greacen, Joseph Jarez, William Smith, Patrick Walsh, Joseph Quinn, A. L. Schoenenberg, Peter McDermott, Andrew Voorhees and others.

*The Accountant the Pilot of Business

Chairman De Witt Clinton Stresses Importance of Accountant and Outlines Progress of Section

We are here assembled for the Eighth Annual Meeting of the Accounting Section of the American Gas Association and this Section extends to each and every one a most cordial welcome and urges not only your continuous attendance at all the sessions but solicits your earnest and enthusiastic participation in the discussion of the papers and reports which will be presented in this room on the afternoons of Tuesday, Wednesday and Thursday of this week. Our Section is most fortunate in the high standard of its program, and we have for the past few years enjoyed the reputation of having the liveliest and most interesting discussions from the floor of the Convention. Your Chairman bespeaks that the Section lose not this enviable reputation this year. In proportion to your attendance and active interest will be the value our industry will receive from these meetings as well as the return your own company will receive from requesting your presence at this Convention.

Each advance of the gas industry into new fields (and we all know the advance in the past few years has been tremendous) has brought the Accounting Department of the Company into more prominence and the accountant and statistician is today not only asked for figures and computations but because of his ability to analyze and chart the course of any part of the business from figures he can prepare, his advice and judgment is sought and acted upon by the wisest managements in our industry. The accountant should be to the business what a pilot is to a ship. The Accounting Section of the American Gas Association has played no small part in bringing about the broader development of the accountant's position in our companies. This Section during the past five or six years has developed from a nucleus of a few interested accountants to a personnel of over eight hundred.

The Program

Our program will cover some of the most important phases of our Accounting and Commercial Office work and the subjects will be broad enough to be interesting and instructive not only to the higher accountants and statisticians but to the general office men, the distribution men, the engineers and the executives. Good, able conscientious, hard work has been put in by all the committees and the per-

* Delivered at the Tuesday meeting of the Accounting Section, A. G. A. Convention, Atlantic City, October 12, 1926.

sonnel of each Committee has been made up of men well able to handle the subject chosen for that Committee. These men have willingly sacrificed their time and convenience that some of us perhaps less skilled in the subjects may have the benefits of their knowledge and hard work.

The Exhibit

The Exhibit Committee will give a short report, but their real work will be seen in the Accounting Section booth on the Million Dollar Pier.

Our exhibits have always been excellent but this year we believe the exhibit excels all past efforts and your Chairman invites—nay, urges—you all to spend as much time as possible at the Exhibit on the Pier.

The Insurance Committee has always been modest in their reports but this year we have asked them to sink their modesty and give us some facts about the good work they have been and are doing.

Public Relations

Perhaps we Public Utility men today hear more in a general way about our Relations with Customers than any other one subject. This year about forty men under able leadership have been working on specific sub-divisions of our Public Relations dealing with problems which arise daily in our contact with the general public. If the suggestions and advice given in these reports are followed up and put in practice our Public Relations cannot help but be improved.

Gas Company Audits

Wednesday afternoon we will hear and discuss such papers and reports as "Gas Company Audits and Auditing"; "Customers' Accounting System of the Consolidated Gas Company of New York"; "Statistics and Cost Accounting," and on Thursday, "Storeroom Accounting and Inventory Taking"; "Cost of Operating Motors and Mechanical Equipment in Distribution Work"; "Uniform Classification of Accounts" and "State Representatives." If your Chairman were to comment on the value and importance of each of these subjects our time log would be entirely wrecked by the very man who is supposed to keep it within bounds. Suffice it to say that your Managing Committee believes they are of such value that none of us can afford to miss one single report, and it is earnestly suggested that the papers be taken home and a more complete study made of them in order that they may receive the attention they so justly merit.

I would indeed be ungrateful did I not at this time record my deep appreciation and that of our entire membership for the hard, conscientious work and wise, kindly counsel of the able Secretary of our Accounting Section, H. W. Hartman.

The success of the Accounting Section of the American Gas Association is assured so long as it can command the interest of men of high calibre in our industry.

Home Service is Here to Stay

Mrs. Peterson Urges "Never Say Die" Spirit

Mrs. Peterson was asked her impression of the Meeting of Commercial Section Wednesday

"Unfortunately I was not present as I was giving a demonstration. But some of the men in the gas industry said to me, 'So Home Service is on trial, after all these years."

"If an official in the industry feels Home Service is on trial, then perhaps we, as directors of this marvelous opportunity, have kept within ourselves the vision we know will ultimately bring us to the goal, that will show the industry that Home Service will bring positive results in volumes of gas sales.

"As Home Service directors we must not lose the punch behind the vision we want these men to see. We are gas men in a man's industry. A few of us may cry a little. Men must not take this as a weakness, just as a man, when he is angry and wants to hit a fellow, puts his hands in his pocket. He feels that the better part of displomacy.

"If the Home Service Directors would only get it into their heads—men are not fighting them as women but simply as an invader into their field. They do the same thing to younger men. My great appeal to women in every line of industry: Make it your special effort to become professional. Watch men! They have many virtues you may copy to advantage to yourself and your company. I have a slogan. It has served me well. 'Never say die, say d—mn.' If this seems a bit vulgar for you, just say it to yourself and you'll find it a marvelous outlet. There will be less tears and more action and a profound respect for your fellow workers in the industry."

MARJORIE PIDGEON WARDMAN

ADA BESSIE SWAN

Industrial Gas Load Increasing

Chairman Cauley Reviews Section's Work

As we close the fourth year of the Industrial Gas Section's work, we find there have been many interesting developments which promise a wonderful future to the industrial side of the gas business.

Time will not permit, however, to cover in detail all the progress made. Suffice to say, that the improvements made in industrial gas equipment during the past year have not only secured a large volume of new business, but have paved the way for greater accomplishments.

These improvements seem to have been largel yin the direct application of gas in conveying, rotary and other types of industrial gas furnaces covering many fields.

It has been extremely interesting to watch these improvements going on. Greater care has been given to insulation and general construction. The application of gas has been more carefully studied in relation to the material that is to be heated. Complete pyrometer and automatic controlling features have been employed, with the result that manufacturers having production operations, are installing gas equipment for many of their heating processes formerly done with other fuels.

Those of you who visited the Steel Treaters Convention in Chicago last month had an opportunity to see a few samples of the type of equipment to which I refer.

Change of Attitude of Manufacturers

There is another angle to the situation which is worthy of comment and that is, the change of attitude of a number of equipment manufacturers who heretofore have been building and selling heating equipment almost exclusively for oil or electricity. Within the past year they have turned their attention to building high grade gas equipment. This is partly due to the activities of a few gas companies who are pushing gas for industrial purposes and who have been instrumental in creating a demand for better gas equipment. Some of the progressive furnace manufacturers have been quick to recognize these activities and their engineering forces are now building modern and efficient gas burning equipment.

The need for improvement in the direction just outlined is most apparent. The industrial gas business will not be on a firm foundation until the manufacturers of gas equipment have such a ready market for their goods that a reasonable profit will enable them to do the necessary research and development work now so much needed. The most logical means of producing a ready market for gas equipment is through the general adoption of scientifically constructed rate schedules which are low enough to meet competition of other fuels.

The interest that gas companies are taking in promoting industrial sales, together with the rate studies that are being made in a number of cities in order to secure the highly competitive business, are tending to encourage the furnace manufacturers to build gas equipment, for they naturally see the possibilities and the lucrative field ahead of them for increased business.

Better Industrial Equipment Required

The Gas Industry needs better industrial heating equipment in order to take on certain classes of business. The American Gas Association through its Board of Directors fully appreciated this fact, when last year, they appropriated $100,000 per year for the next five years, to carry on industrial gas research and development work. It is therefore imperative that every gas company should lend its support to the Research Fund and also co-operate with the progressive furnace manufacturers, for it will ultimately reflect in increased gas sales.

In reviewing the work of the Industrial Gas Section for the past year, it is gratifying to note that each Chairman and his Committee have worked hard to accomplish their objectives.

Policy Committee

The task of educating 800 gas companies to adopt the right policy in promoting industrial gas sales is a large one. The Policy Committee, however, undertook the job and a series of letters have been sent out to gas companies semi-monthly, outlining the value of the industrial load and policies which should be pursued to secure it.

Educational Committee

The necessity of drawing new men into industrial sales work is apparent to every man promoting industrial sales. The Committee who were responsible and other men outside of this Committee who have been instrumental in promoting industrial gas courses, have done a real service to the Gas Industry.

Progress Committee

The collecting of operating data and securing pictures of successful industrial installations is very valuable to our sales organizations and I sincerely hope this material will continue to be forwarded to A. G. A. headquarters for the benefit of our Association members.

Advertising Committee

It is particularly gratifying to your Chairman that contracts have been renewed to continue our National Industrial Gas Advertising. Twenty-one trade magazines and six college papers with a monthly circulation of approximately 250,000, provide a most excellent means of telling our prospective customers what can be done with gas. The men in charge of this activity are veterans in this line and have done wonderful work.

Publicity Committee

Much of this Committee's work has been the securing of industrial gas articles for trade papers and other magazines. Through their efforts (and of course the contributors) a large number of articles have appeared monthly in various publications. This means of informing the public of the progress that is being made with gas and its possibilities for industrial heating is an excellent one and should be continued.

Public Speaking Committee

We seem to be living in an age of clubs for every town or city has almost an endless number of them, such as the Rotary Club, Kiwanis

Club, Lions Club and many other trade and business clubs. The after-luncheon and dinner talks seem to be a part of our every day life. As a result of this condition, our Section inaugurated a Public Speaking Committee this year. A number of talks on industrial gas have been made by prominent industrial gas men throughout the country and a large number of prepared speeches compiled by the Committee have been sent out to the various gas companies from A. G. A. headquarters. I would heartily recommend that this work be enlarged on during the coming year as too much of it cannot be done.

Survey Committee

As industrial survey work is the forerunner and the correct basis for planning all industrial gas promotion, I am looking forward with a great deal of interest to hear the report of this year's Committee. While it is humanly impossible for the Committee to submit a survey report on every town and city in the country, still with the district organizations built up by this Committee, I feel that they will have some interesting figures to show us. I cannot stress too strongly the value of industrial surveys. In fact, it is in my opinion the only systematic way of going after the industrial gas business. Therefore, the work of this Committee should be very valuable to this section.

Convention Program Committee

The Committee delegated to arrange the Industrial Section's program has succeeded in securing some excellent papers contributed by leaders in the gas business. They have also inaugurated something new for our Section by having three industrial papers prepared and delivered by prominent men outside of the industry who are industrial gas users. One of these papers will be read before the General Session while the other papers will be presented before the Industrial Section meetings. I am sure we will all enjoy them for it will give us a chance to study the other man's viewpoint.

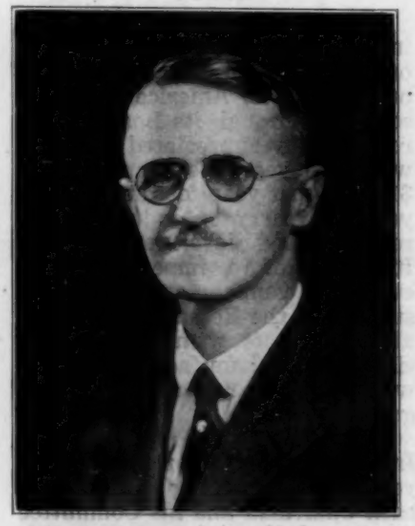
Industrial Research Committee

The Industrial Research Committee appointed by the Board of Directors of the American Gas Association to supervise the indus-

HOWARD DeWITT VALENTINE,
Peoples Gas Light & Coke Co., Chicago, Ill.

trial research and development work is well organized and the work is going ahead. During our meeting the Chairman of this special committee will talk to us on the plans and activities of this important work.

I believe we are moving in the right direction. The future of the industrial gas business seems to be growing brighter every year and with the improvements in gas equipment and the number of gas companies that are striving to adjust their rates in order to take on larger volumes of industrial business, I am looking forward to see industrial gas sales doubled within the next few years.



FREDERICK W. SPERR, JR.,
Chief Chemist, The Koppers Co., Pittsburgh, Pa.

In closing, I want to earnestly thank all the men who have worked with me this year. They have accepted their tasks willingly and have given their time freely to the work of the Industrial Gas Section.

To the incoming officers, I would heartily recommend that the work of the present Committees be continued and enlarged upon next year.

BUREAU OF MINES' A. G. A. LABORATORY WORK TOGETHER

Their Adjoining Exhibits Exemplify Their Close Relationship

The entente cordiale established between the A. G. A. Laboratories and the Bureau of Mines is of incalculable benefit to the gas industry at large.

With the immense resources of the Federal Government behind it, the latter very naturally, for some time to come at least, will have at its disposal a personnel and equipment far in excess of that of the rapidly growing A. G. A. Laboratories, but the difference in degree will be amply compensated by the cooperative spirit.

The Federal Bureau with headquarters at Washington, D. C., is organized in two departments—the technologic and economic branches. The former numbers eleven divisions; the latter five. Eleven field laboratories handle the research work, the largest laboratory at Pittsburgh, Pa., being of chief interest to the gas industry. The Bureau of Mines maintains most elaborate systems of mechanical apparatus where all devices of interest to any industry may be submitted to rigid tests of infinite variety.

The results of the work of the Bureau of Mines are given in various types of publications. A few of particular interest to the gas industry are appended.

Why and How Coke should be used for Domestic Heating.

Water Gas Apparatus and the use of Central District Coal as Generator Fuel.

Stenches for detecting leakage of blue water gas and natural gas.

Preparation and use of Tar and its simple crude derivatives.

Efficiencies in the use of bituminous Coking Coal as water-gas generator fuel.

Coal and Coke mixtures as water-gas generator fuel.

The Universal and Fireman's Gas Masks.

Value of coke, anthracite and bituminous coal for generating steam in a low-pressure cast-iron boiler.

Water-gas tar emulsions.

The Bureau of Mines Orsat apparatus for gas analysis.

Utica Gas and Electric Company Puts It Over

Messrs. A. T. Fay, Industrial Gas Division, and G. A. Wieber, Commercial Manager, Utica Gas and Electric Company, Utica, N. Y., report most optimistically anent their recent efforts in the field of Gas House Heating. In view of the excessively low temperatures that obtain in this section of New York State it would seem that considerably more than of a modicum of comfort should be taken by gas companies in other sections, particularly below the Mason and Dixon line.

This company spent over three years in experimental work, both in the laboratory and in actual home installations. Immediately following this very necessary investigation, they proceeded to go after house heating and as they view the matter they have not been "fouling the ball" by any means. Attesting to this statement, witness upwards of one hundred installations with NOT ONE, to date, taken out. Their average rate for house heating runs about eighty (80) cents per thousand with the gas carrying 537 B. T. U. per cubic foot. Each installation of the hundred mentioned above will average about 450 thousand cubic feet of gas per year.

Well Planned Publicity

In carrying out their campaigns, the first of which was instituted this last spring, this company made liberal and judicious use of a well planned publicity campaign. Two of the Utica newspapers were used for advertising and in addition appropriate and "to-the-point" folders were mailed to a selected mailing list. This list included only those householders who would be in a position, from an economic standpoint, to consider installing gas house heating. The prospects from the list in question were also canvassed. It might be well to mention the fact that quite a number of home owners, not included in the selected list, maneuvered and connived to the end that they arranged their budget of household expenditures to the point where they CONVINCED THEMSELVES that they COULD AFFORD gas house heating. This, no doubt, called for the delaying of purchase of a new "hand carved melodeon" for Aunt Euphronia or mayhap the abandonment of numerous journeys to the local movie house.

Messrs. Fay and Wieber stoutly maintain that they have but scratched the surface of the total possible prospects. Certainly their work and "pep" belies the sad and sodden statement that we can never get out of the clutches of those who are selling coal—hard or soft. Take your choice, and prepare to get a strangle hold on dirt and the ash can.

Refrigeration Exhibits First Shown at Gas Convention

A few years ago, the most modern concept in the mind of the American housewife, when she wanted refrigeration, was a porcelain-lined, sanitary ice box with leakproof ice-compartment. A little later she thought that electric refrigeration was the modern method. Tomorrow, she will look to gas.

There are three types of gas-fired refrigerators on exhibit in the annual show of the American Gas Association. Their booths are at the far end of the exposition hall. The attractive furnishings of the booths, the very effective crepe paper sunburst which forms the background of one of them, fade in importance before the significance of the shining white refrigerators.

Although, years have been given to the development of these refrigerators, they are so new in principle that no extensive effort has as yet been made to market them, and there are many sections of the country where the public has never heard of gas-operated refrigerators. Even the thermostatic control of the refrigerator has been removed from the control of the electrician and operated by gas.

Although the original cost of the machines is equal to or slightly more than those operated by electricity the manufacturers claim that the cost of upkeep is less than a quarter as much, and that from the standpoint of economy these machines should have little competition.

Three companies have presented gas-fired refrigerators, the National Refrigeration Company of New Haven, Connecticut with its Ice-O-Later, the Gas Refrigeration Company of Scranton, Pennsylvania, and the Electrolux Servel Corporation of New York City, with a gas-fired absorption type machine.

Home Service Report to be of Special Interest

A valuable and interesting report of 1926 Committee filled with benefits to present and prospective Home Service Departments, was distributed Wednesday at the Commercial Section Meeting. Through Miss Dowell's efforts a great deal of worthwhile material has been gathered.

A Correction

In the write-up of the interview with Mr. Murdock on the Pier Process published Thursday morning it was erronously stated that the United Gas Improvement Company is the exclusive sales agent for this process. As a matter of fact the U. G. I. Contracting Company is exclusive sales agent.

Kate and Complicate

We all know Jake Jones, of Bridgeton, N. J., can write good gas stories. The editor can himself testify to that. But it is not every gas man who can boast of a young daughter who can go her dad one better in this respect. Helen Jones, Jake's 15-year-old daughter, has written us a story. Maybe it is not quite pertinent to gas, but it makes good light reading, suitable to the Atlantic City spirit. It follows:

The ship ploughed its way into the seemingly never-ending blue of sky and water. As it moved, the water was broken into hundreds of sparkling, dancing waves. In the distance the blue of the sky melted into the blue of the water. Suddenly the scene changes; broken by an ever-growing and plainer line of green; then by a shapeless mass of grey; a dash of brown; a bit of red; a streak of white; a flush of gold. The harbor of Havana, Cuba, was in sight.

The Fairy City

Havana, the quaint, romantic magic Spanish city, with its harbor guarded first by Morro Castle, and then La Cabanas, with its watch-tower and cannons on the ramparts. Beyond lay the Fairy City. The sun was just sinking and the roofs, which a few moments before had been red and white, were now dissolved by a warm, soft, rosy glow.

Into the picture came Catharine and Jane Crawford and a certain Jerry Gregory. One would infer from the above statement that they were all together. Such was not the case. Catharine sat on a steamer trunk, which had been brought out preparatory to going ashore. She seemed to guard it jealously, as if it contained a hidden treasure, while to her other trunks she paid not the slightest attention. To find Jane would be a harder matter. It would require the unlocking of the steamer trunk on which Catharine was perched. the removing of the many feminine articles, the pushing of a button—and presto! Jane!

A very disheveled Jane, with her face pressed close against the side of the trunk, where air holes had been bored. If Jane had stood up, one would have thought they were seeing double. For Jane, 18-year-old twin sister of Catharine, looked so much like her, from the top of her closely cut brown head to the tip of her small satin slippers, that their friends laughingly called them "Kate and Duplicate."

A Complicated Affair

This sounds like a very complicated affair, but it was easily explained. Catharine had entered a newspaper contest, which was offering for its first prize, a trip to Havana, Cuba. By some luck of the gods, Catharine had won. Then had arisen the perplexing problem of how Jane could also go, for whoever heard of separating twins? Their mother and father being gone, they both worked for a living and neither girl had much spending money.

A plan, at first dismissed as too daring, was finally carried out. This was the plan: Catharine was to go on board early, taking with her two trunks, one to contain Jane. The brilliant idea of the trunk bottom had been Jane's as a way for getting by the custom officers.

Jerry Gregory stood near by watching Catharine. He had noticed her when the ship sailed from New York; since then he had tried to manage some way to become acquainted, but none presented itself until the boat docked. Catharine, hurrying along, caught a small French heel on the gangplank. It would have thrown her but for a steadying hand on her arm. She turned quickly to encounter the gaze of a pair of friendly brown eyes.

A conversation ensued, and Jerry Gregory left Catharine Crawford with a "date" for eight o'clock that night.

Safe in the confines of the cool, high ceiling room of the Hotel Seville, Jane was released from the trunk. Catharine immediately recounted to her the wonderful news. It was decided Catharine was to keep the date for that night, but Jane would have the next one.

So it went on for two weeks, first Jane, then Catharine went with Jerry to the Tropical Gardens, went to explore Morro Castle and La Cabanas, walked along the El Parado, swam in the Gulf of Mexico, visited the old cathedrals, and went into San Rafael street, where many novel and unusual shops displayed fine linens, laces and rare perfumes.

So it was one moonlight night, as they sat listening to the band and watching the flashing light from the tower of Morro Castle across the harbor that Jerry proposed. Proposed to Catharine, but it was with Jane, the following evening, he planned the wedding. They would go to Matanzas and there in the odd, picturesque Monserrates they would be married.

That night Catharine and Jane had their first real quarrel. The next night was by right Catharine's, but, pleaded a tearful Jane, how could she possibly let Jerry go? Catharine won out by the terms of the agreement and Jane bore the defeat in bitterness.

That night an idea arose in Jane's mind. She would also go to meet Jerry; then he could choose between the two of them.

The Twin Brother

Arriving at the appointed place a little after Catharine, who had already met Jerry, she ran breathlessly forward, but her flight was stopped a few feet away from the two by a young man directly in front of her. She stopped and stared. Surely she was seeing double! For Jerry was with Catharine; yet here came Jerry toward her! Suddenly the humor of the situation dawned upon her. She pointed an accusing finger at Jerry who was standing, too amazed to move, staring first at one, then the other. "You have a twin brother," she cried.

Seeking a quiet corner, they sat down to explain everything. Catharine and Jane told their story; then Jerry and Gordon told theirs. They had done nearly the same thing. Jerry going one night, Gordon the other. By the change and change about method, Jerry had always gone with Catharine and Gordon with Jane. The wedding plans were to be carried out anyhow. Jerry and Catharine arrived first and had left by the time Jane and Gordon came. The Spanish justice, a man somewhat slow of comprehension, has never quite figured it out why one couple desired to be married twice!

Registration for Final Day A. G. A. Convention

A

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B

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C

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F

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H

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L

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P

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S

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Sweet, D. E.; Waterbury, Conn.; Strand.

T

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U

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V

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W

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Worrell, Duncan; Phila., Pa.; Shelburne
Wynne, John B.; Phila., Pa.; Knickerbocker

X

Xylander, Peter; Hackensack, N. J.; Dennis

Y

Young, Clifford, Wilmington, Del.; Marl.-Blenheim

Z

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Zingg, Julius; Newark, N. J.; Chalfonte

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Stores Records and Accounting Methods*

F. J. Bischoff, Jr.

New York City, N. Y.

PERIODICAL adjustment of material and supplies, to bring the book values into conformity with the actual facts is the very foundation of sound acounting practice, and the necessity of actual inventories at regular intervals is so obvious as to require no argument in its support.

Consideration of the subject in this paper, however, will be directed primarily to a presentation and discussion of one phase of this subject, namely, "Stores Records."

In order to provide the foundation for adequate analysis of inventory variations (and they will occur in spite of the best accounting methods) consideration must be given to the initial department records, reflecting the transactions day by day, upon which all entries made at the Accounting Office are based.

Records Are Necessary

Stock or stores records, in some form adapted to the type of material, are necessary to every company for adequate records of its investment in material and supplies. Coal, coke, gas oil, pipe, gas appliances, appliance repair parts, and other miscellaneous materials all present different problems as to the form of maintaining adequate statistical data. Gas oil records, for example, based entirely on actual tank measurements or daily inventories represent the simplest form, measured in terms of clerical detail.

Miscellaneous Material and Supplies on account of the multiplicity of items and the great number of transactions in a month, require a more complicated clerical detail for proper record of the material received, used and on hand.

The importance of keeping detailed records for the major items of material used in the production of gas is generally recognized by every company in the industry, but it is the numerous miscellaneous materials which seem to require the most attention.

For such items, as coal, coke and gas oil, which represent the major items of material used in the production of gas, stock accounts dealing with quantities only, maintained in the operating departments, may be readily converted in monthly summary into a complete stores account in the Accounting Department, reconciling the quantities with ledger values.

Clerical Detail Involved

The clerical detail involved in accounting for the various other classes of material does not permit of this practice, and one of two methods may be followed for these items of Material and Supplies.

(a.) A stock account of quantities only, maintained by the department with the application of unit prices by the general accounting staff to the quantities used each month, or

(b.) A Complete stores record system comprising both quantities and values, and representing an analysis by items of the book figures of Material and Supplies.

The latter method is of course the only means of attaining absolute accuracy, but it is also a costly one in that it entails far greater clerical labor. Substantially accurate results can be obtained by the former method at a lower clerical cost. In any case, control of the stores account should be vested in the Accounting Department under the jurisdiction of the General Accounting Staff.

Practical reasons may make it desirable to group together certain small items of material such as, waste, lubricants, screws and other minor supplies which are not susceptible of accurate measurement of the quantities used on given jobs in a classification of Expense Material and charged to operating expenses when purchased.

It is urged, however, that this class of material should be confined to the items properly coming within this group, for extended application of this practice will tend to destroy accurate costs by loading into the current expenses the total cost of a quantity sufficient perhaps to provide for several months' supply.

Future Requirements

The stores record is also an invaluable guide in determining the quantities of material to be ordered for future requirements. Properly employed, it should pay for its cost in the elimination of dead stock alone, and in permitting the maximum use of the investment necessary for material and supplies.

Stores records should be maintained by every department having a storeroom for material.

Some companies maintain what is known as a general or central storehouse to which all general supplies are delivered by the vendors, while other companies find it more convenient to maintain a separate storeroom for every department, each department ordering its own supplies direct. I will not attempt to describe the possible advantages of either practice, for it depends largely upon individual company policy and conditions. The geographical layout of the territory supplied by a Company would also be a factor for consideration.

Many of the large companies purchase the more important items of distribution material, such as, pipe and fittings, appliances and repair parts, etc., in large quantities usually by contract for about a year's

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* Part of the Report of the Committee on Gas Company Audits and Auditing.

supply. The delivery of this material is usually under the control of the Purchasing Agent who issues the necessary shipping instructions to the vendors based on the requirements of the various departments. By this method, large shipments of material may be distributed among several departmental storerooms.

Conclusion

In conclusion, it should be borne in mind that no one system can be recommended to fit the requirements of every company. The small companies not being burdened with the ramifications confronting the large companies would not require as elaborate a system. In other words, the stock records maintained by any company should be designed to insure a complete control of the various classes of materials and supplies through a minimum of effort and expense.

(*Editor's Note: This section of the report could not be reproduced in full due to want of space. The complete report can be secured from the A. G. A.*)

Inventory Taking

C. J. Hill

Chicago, Illinois

THE importance of recording completely and accurately all transactions which have to do with the receipt and distribution of materials and supplies, cannot be too strongly emphasized. Material control is very similar to the control of cash and securities. In fact, it is cash in just another form, and is usually harder to control. We stress the great importance of adequate controls on cash and securities, with a tendency to forget the control of our material and supplies.

It is assumed that all of the companies in the industry have at this time, or are working on, a complete and thorough system of stores control on all materials and supplies received and issued. The individual card system lends itself well because of its flexibility.

In some companies it may be necessary to inventory stocks each month, while in others the internal control may be so complete that semi-annual or annual inventories are sufficient. When and how inventories are taken is a matter of policy to be determined by each company. The amount invested in stocks of materials and supplies is usually of sufficient size to warrant a complete control.

Physical Inventory Once a Year

However, a physical inventory should be taken at least once each year, for no matter how carefully material records may be operated, there are so many variable conditions in connection with the movement of materials that disregarding the frequent spot-checking in the storerooms many of the ledger quantities will differ from actual quantities. As the inventory is used for financial purposes, it must represent material actually on hand. Only a physical inventory which affords the counting, weighing, and measuring of all materials will furnish results paralleling actual conditions.

The method will vary with the class of material to be inventoried. For instance, the inventorying of a coal or coke pile is necessarily an engineering task to survey the cubical contents of the pile and compute the tonnage, for the reason that it would be impossible to actually weigh the large quantities kept on hand. On account of the usual irregularity in shape of the coal and coke piles, absolute accuracy of this material is not ordinarily possible, and a survey of within 10% of the book figures should be considered as confirming the accuracy of the books. With gas oil, however, the entire records are based on tank measurements or inventories taken daily, and the inventory adjustment disappears.

Purifying materials such as oxide, etc., should be inventoried similarly to coal and coke if stored in large quantities.

Inventories of practically all other material must be made by means of an actual count of the stock, and the procedure as to method and routine should be along the following lines.

Preparations Made in Advance

Preparations for taking the physical inventory should be made well in advance of the inventory date, and should be under the supervision of the accounting officer. Every effort should be made to develop a corps of highly-trained men to intelligently handle the details of the work. The superintendents of the departments affected by the inventory taking should be included as active members of the inventory personnel. For the physical work of counting, weighing and measuring the stock, fitters, inspectors, shop clerks and others who are most familiar with the stock to be inventoried should be chosen for the work.

Instructions to stockkeepers should be worded clearly, typewritten or printed, and issued in sufficient time to enable all receiving copies to become thoroughly familiar with them. These instructions should tell the complete story of what the stockkeeper is to do and how it ties in with the inventory plan as a whole.

Some companies have a General Storekeeper, who has complete charge of the storerooms. It is his duty to see that the instructions to the stockkeepers are

followed. This plan is greatly aided by his regular trips taken to the various branch storerooms, wherever located, making surveys of the progress of the work done as it goes along.

The stockkeepers should prepare for the physical inventory in each storeroom of the company, but the actual work of counting, weighing, listing, etc., should be done by a special force.

In connection with the reconciliation between the inventory of Material and Supplies and the general ledger control, and before any entries can be made, it must be borne in mind that there must be a clean break in the accounts as of the date inventories are taken, and for all material included in the inventory, there should likewise be entries in the books of account. Invoices for material received as of, or prior to the inventory date, must be put through the accounts so as to be included in the book figures which are to be reconciled with the inventory valuation. If for any reason actual entry in the books cannot be made for certain items, proper entries should be made to cover same in an adjustment column on the reconciliation statement. Likewise receipts for material received applicable to the inventory period, for which invoices have not been received, must be valued and entries made on the reconciliation statement.

Entries made in the books of account representing inventory adjustments of Materials and Supplies should be handled through the account "Undistributed Adjustments" as provided in the "Uniform System of Accounts."

(Editor's Note: This paper has been abbreviated for want of space.)

Customers Accounting*

The system used by the Consolidated Gas Co. of New York

G. A. Burrows

Assistant General Commercial Manager

THE present method of keeping customers' accounts has been in effect about one (1) year. Prior to this time they were kept in bound ledgers with a consumption register and a tickler checking system for each ledger. Bills were made by bookkeepers in manuscript.

The accounts are now kept in adjustable (loose-leaf) ledgers held in Kalamazoo binders. The opening of binders is controlled by the Chief Clerk, who supervises the insertion or removal of sheets. Bills are machine made.

The consumption register, in which the bookkeeper formerly recorded (from the bill) and totaled the amounts of consumption, and the tickler records, in which tickler clerks entered the amounts of bills rendered by bookkeeper, are no longer necessary, because the billing machine automatically records these amounts as bills are made.

Tickler clerks, as auditors, now check the work of the bookkeeper directly with the ledger—thus insuring a complete audit of every ledger each month.

Individual Order Tickets

While consideration is being given to the consolidation of order forms, the individual order tickets are still in use, and are of different colors in order that they may be quickly distinguished from each other. These forms with the exception of the Unlock or Set Meter, which is in triplicate, are in carbon duplicate and are as follows:

Unlock or Set Meter
Lock or Bring-In-Meter
Change Meter
Bookkeeper's Order for Investigation
Index Meter
High-Bill Investigation
Gas-Supply Investigation
Leak Investigation

On all order forms, space is provided for the source from which the order is received, by whom received, customer's telephone number, date, name, address, and all other information required to promptly and efficiently execute the order.

Applications

An applicant for service is required to sign an application form, whereon is recorded all information for correctly issuing the order to unlock or set meter, and to set forth the status of the account. The clerk taking the application is required to witness the signature, to print the name of the customer for the prevention of the misspelling of the name in setting up

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* Delivered at the Wednesday meeting of the Accounting Section, A. G. A. Convention, Atlantic City, Oct. 13, 1926.

the addressograph plate, and to obtain all information called for on the back of the application, such as:

Address where gas was formerly supplied, business address, name of the employer of applicant, etc.

Ledger Sheets

The ledger sheets are of standard size (11x14) loose-leaf hinge, buff color with green edge, Kalamazoo punching, ruled and printed on both sides, with corners rounded and designed to last for a period of five (5) years allowing for seven (7) changes of name, irrespective of the original set-up.

To facilitate the transferring of customers' accounts periodically, space has been provided for the first impression of the name, address, etc., to be made by the addressograph machine. This course is also followed where new meter installations are made to insure a certain standard throughout the ledger. All data relating to customers' accounts and meter records are recorded on the ledger sheet.

Index Sheets

The index sheets are of convenient size for the meter reader to handle and are originally set up in part by the addressograph machine. All information required by the meter reader is recorded on the index sheet which is of the continuous reading form and designed to last for a period of two (2) years. Indexes are recorded starting at the bottom of the sheet to facilitate the work of the meter reader in subtracting the previous index from the present index to obtain the amount consumed. By having the meter reader record the amount of gas consumed it affords the opportunity of checking the consumption while the meter reader is still on the premises. The consumption on the index sheet is also necessary under the present method of machine billing which is done from the index books.

Gas Bills

More than 99 per cent of the gas bills are rendered at the $1.15 per M cu.ft. rate, therefore a straight-line bill was designed to insure a maximum of production by the machine with a minimum of effort by the operator. The machine records the dates, present index, the previous index, consumption, and the amount on the body of the bill, and by a repeat mechanism the amounts are also recorded on the cash and collectors' stubs. If a bill goes into the block rate, a paster giving details of the amount of gas consumed at the various rates is attached. The indexes, total consumption, and total amount, however, are typed in the same manner as other bills.

Record of Bills Rendered and Outstanding

These forms are used to record gas sales. They are of uniform size and are punched so that they may be stored in binders by ledgers. Each sheet when placed in the machine, with the use of carbon paper placed between the bill and the sheet, will record the information of 100 bills rendered. The sheets are totaled by the machine and are proved by adding the total of the previous indexes to the total amount of consumption, to prove the subtraction, and by multiplying the consumption by the rates, to prove the accuracy of the amount total. Amounts going into the block rates are summarized at the bottom of the sheet. The number of sheets required to bill a ledger is offset by the convenience of proving bills in lots of 100 and the compactness with which they can be stored for ready reference. The same form of sheet, specifically marked, is used for recording prior bills, that is, those bills rendered prior to the regular monthly indexing date of the ledger, and for subsequent bills, those bills rendered after the regular monthly indexing date of the ledger.

Proof Sheet

This form is used for recording the total monthly sales of each ledger, compiled from the carbon sheets of bills rendered, mentioned above.

Sales Verified by Auditor—Summary of Sales

This form is used to summarize the entire sales of the district office, by ledger, for the General Office Accounting Department.

Indexing

Indexing is continuous over the month comprising 19 days excluding Saturdays, Sundays, and holidays, for each district office. Ledgers are completely indexed in so far as it is possible to obtain indexes on the date set for the ledger. Owing to the difficulty of obtaining indexes in New York City, indexing hours vary in accordance with district conditions, meter readers being obliged to work such hours as are productive of the best meter-reading results. Having covered the route assigned, the meter reader retraces the route for purpose of picking up as many indexes as possible that were not obtained on the first call. "Index Meter" tickets are drawn hy the meter readers for all missed readings, on which are shown the ledger and folio, customer's name and address, meter number, the previous index and the date. Every effort is made to obtain these indexes as soon after the indexing date as possible. The first call on the ticket is made the night of the indexing date between the hours of 5 and 9 P.M., in order to reduce the number of "missed readings" to a minimum before the ledger is billed.

Preparations for Billing

After the bills are addressed, they are forwarded to the Appliance division, where those on which merchandise amounts are due, are selected by folio and the name and address compared with that of the merchandise account and the amount due is typed on the bill. The bills are then forwarded to the Billing Division where the outstanding amounts (or arrears),

as they appear on the customer's account in the ledger, are recorded on them.

As the outstanding amounts are added to the gas bills an automatic listing of the amounts is obtained which becomes the record of outstanding for the ledger. This relieves the bookkeeper from the necessity for making a separate manuscript record of current outstandings. It is customary to do this work the day on which the ledger is being indexed, when the outstanding is at its lowest point. Bills and outstanding lists are then returned to the bookkeeper who proceeds to balance the ledger. Outstanding amounts paid after they have been recorded on the gas bills are "blocked out" and marked "paid" prior to the delivery of the bill.

The day following the indexing date, the bookkeeper records in the ledger, the index, consumption and amount of bill, on all accounts that are to be billed. On those accounts that are not to be billed, pending investigation, entries are withheld from the ledger until verification is obtained, the bookkeeper drawing the necessary orders. The bills for such accounts are also withheld by the bookkeeper to prevent them from being machine billed.

Making Entries

After the entries are made in the ledger, the index books and the bills are forwarded to the Billing Division. The operator selects the first 100 bills, places them in the magazine of the machine, inserts carbon paper with sheet that is to record bills rendered, and proceeds with the billing. This operation continues until the ledger is completely billed.

Index-book holders, magazines, rate charts, etc., are placed on the machine in such a convenient way that there is no lost motion on the part of the operator.

The bills with the listings are returned to the Bookkeeping Division where the auditor in charge of the ledger proceeds to check the bills against the entries made in the ledger by the bookkeeper. The auditor not only checks the accounts that are billed but also those not billed, to determine that the action taken by the bookkeeper is correct. In this way the ledger is completely audited before the bills leave the office.

Auditing Bills

Having checked the bills against the ledger the auditor proves the sales as recorded by the machine billing division and then forwards the bills to the Collection Division.

The Billing Division is in charge of a supervisor, who checks the work turned out by the operators and keeps detail records of their efficiency. Operators with less than two (2) weeks' experience are able to average 200 bills per hour. Operators of more than two (2) months' experience are producing an average of 382 bills per hour without undue effort, with the number of errors negligible.

Billing Missed Readings

"Missed readings" as they are obtained, are forwarded daily to the bookkeeping division where entries are made by the Bookkeepers in ledgers and index books. The "missed readings" with the bills are then forwarded to the billing division, where the same procedure is followed as for regular billing, except that the bill is made from the "missed reading" tickets instead of from the index sheets. The tickets, bills, and listings are then returned to the Bookkeeping Division and after the auditor has checked the entries in the ledger, bills are forwarded to the Collection Division and the "index meter" tickets filed. The carbon listings of bills rendered are held by the auditor with those of the regular billing until the end of the month for the purpose of making up the complete sales for the ledger.

Final Bills

Executed "Lock Meter" orders are forwarded to the Bookkeeping Division where the necessary entries are made in the index books and ledgers. The bills are rendered in duplicate by the bookkeeper in manuscript. They are, however, forwarded to the machine-billing division for the purpose of listing the sales in practically the same manner as other sales are recorded. The bills, however, are not run through the machine. Upon return of bills and listings to the Bookkeeping Division, they are checked by the auditor against the ledger entries. The bills are then forwarded to the Collection Division, listings being held with other listings of the ledger until the end of the month.

At the time of checking the bills against the ledger, a distinctive check is placed beside the amount billed. The purpose of this check is to distinguish one class of billing from the other.

The sales for regular billing of the ledger are compiled and completed immediately after the auditor has checked the general billing so that it is only necessary to add to this figure at the end of the month, the sales of prior and subsequent billing to obtain the total sales of the ledger. Prior and subsequent sales consist of items billed at irregular dates and include "final bills" as well as "missed readings."

Delivering and Collecting Gas Bills

It is the practice to deliver all bills except in districts where experience has shown that collection results are poor; for such districts, bills are mailed. Before leaving at night, collectors receive from 250 to 275 bills for delivery the following day.

Collectors start at 8:30 A.M. returning at about 3:30 P.M. Bills that have not been delivered because the customer has moved, or for some other reason, are returned by the collector who makes a report on the collector's stub.

Collectors note, on the collector's stub, the bills that have been delivered and how delivery was made. Those on which payment is received are marked "paid." The cash stubs of bills collected are balanced with the money turned in by the collector before he is permitted to leave and before he receives his work for the following day. It is considered good practice

to deliver bills in New York City because not only does the collector collect about 34%, but there is the assurance that bills are placed directly in the hands of the customer or under the door of their apartment, if they are not at home. Collectors are not permitted to place bills in letter boxes or leave them in hallways because experience has shown that this opens the door to the bogus collector; furthermore, in the poorer-class tenement houses in New York City there are either no letter boxes, or they are not in good repair.

Following the Account for Payment

The collector's stubs, of bills not paid, are filed for seven (7) days. On the eighth (8th) day they are checked with the ledger account. The stubs of the paid accounts are discarded and the remaining are subjected to action in accordance with the rating of the account.

Final bills are mailed to the forwarding address given by the customer at the time of ordering the gas supply discontinued. The duplicates are held for seven (7) days, after which time they are followed by a special force of final bill collectors. If no forwarding address is given and the collector is unable to trace the customer, the application signed by the customer when requesting the service is referred to for further information, before the duplicate is placed in the file of bills to be charged to the bad and doubtful account.

All cash received is balanced and stubs bundled by ledgers in folio order by the Cashier's Division daily.

Cash is posted to customers' accounts the first thing in the morning following the day of payment. All action of credit clerks is withheld until this is done to guard aganst sending notices to customers whose accounts have been paid.

Meter Control

There is no separate meter control because meters set or removed are balanced monthly with records kept by the Customers' Service Department. The Customers' Service Department makes a record of all meters set, in a permanent book which is regularly sent to the District Office where the ledger entries are checked by an auditor who verifies that both entries agree and that an index sheet has been placed in the route book.

A report of meter transactions is made monthly to the General Office Accounting Department. Periodically the meter records as they appear in the ledgers are checked to verify the accuracy of this report.

Deposit Control

A perfect control of deposits is maintained by a bound stub system, the customer receiving a deposit certificate bearing a serial number which is detached from the stub bearing the same serial number. On the stub is shown the name, address of the customer and the amount of deposit paid. These stubs remain securely bound after all deposit certificates have been issued from the book. The practice is to note refunds of deposits on the ledger account at the time the refund is made, a similar entry being made on the stub by the bookkeeper. By this method there is no danger of refunding the deposit a second time, because the bookkeeper is always required to refer to the stub before refunding a deposit. Deposit stubs are officially cancelled, the day following the refund, from the cashier's daily record of deposits refunded.

(Editor's Note: This report is published in abridged condition due to lack of space, but this complete report can be secured from the A. G. A.)

Insulating Gas Heated Homes*

Real advantages are gained in fuel saving, etc.

H. B. Johns

IN ordinary construction of walls and roofs, we find that heat is transmitted through each square foot of these materials at rates varying from .20 B.t.u. up to something over 1.20 B.t.u. per hour per degree difference in temperature between the inside and outside of the wall, depending on the construction of the wall. A 16-inch brick wall furred and plastered, for example, has a transmission factor of .21 while a 16-inch plain concrete wall has a factor of .50 B.t.u. per square foot or more than twice that of the brick. It can readily be seen, therefore, that the heat loss from a building will be governed by the type of construction. Many types of construction in use today have a rather high heat loss factor and are, therefore, wasteful of heat. Roof construction is frequently not of the best material for resisting the passage of heat, as is indicated by the rapidity with which snow melts from roofs in cold weather, due to the heat loss through the roof. This, of course, means high fuel consumption.

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* Presented before the Commercial Section, A. G. A. Convention, Atlantic City, October 11-15, 1926.

Insulation Reduces Losses of Heat

Heat losses may be materially reduced by the proper application of good insulation materials. Insulation materials are made from a variety of waste products or raw materials which are inexpensive in their original state. Some of the materials used are vegetable fibres, such as, sugar cane, wood pulp, eelgrass, etc.; also materials, such as, gypsum, cork and cattle hair. These materials are often pressed into boards, or made into a mat or quilt with or without paper on either side and delivered in rolls. The gypsum products are usually poured into moulds on the job. The effect desired is, of course, to cut down the rate of heat transmission through these walls as much as possible.

The effectiveness of these materials in practically all cases is due to minute air spaces which are confined in the materials. Most of the manufacturers have reports to show that about one inch of insulating material is equivalent to a fairly well built wall in resistance to the passage of heat. That is, the coefficients for heat transfer for these materials are approximately 0.35 B.t.u. per square foot per inch of thickness. When the thickness of insulating material is doubled this factor is practically cut in half, making the wall a very effective non-conductor of heat.

Keep Heat Out in Summer

Another advantage of insulation is that heat is kept out in summer, as well as it is kept in in winter, hence an insulated home is much more comfortable in hot summer weather than an uninsulated home.

The best way to apply an insulation material is to make it a part of the wall during the time of construction. That is practically the only time that the walls of a home can be insulated. In many cases, roofs and unfloored attics can be effectively insulated even after a home is built.

It is very difficult to prove by a practical demonstration how much saving can be effected by insulating a building, since it is seldom that two buildings are erected which are alike in every respect.

We can, however, insulate the attic of a home which has burned gas for a year or more and find what difference there is in the gas consumption per season following the application of the insulating material. Gas is an ideal fuel for a test such as this, since it is under thermostatic control and the amount consumed is measured accurately.

Due allowance will have to be made for the relative amounts of cold weather encountered.

Examples of Saving Due to Insulation

The Peoples Gas Light and Coke Company, in cooperation with several insulating companies, insulated a number of attics in homes which have been heated with gas for a year or more. Savings of 10 to 15 per cent. have been shown on two-story residences and 20 to 30 per cent. on bungalows.

The following are some of the examples of what has been done:

1a.—6193

Six rooms and sun porch—two story residence unfloored attic—space between joists filled 4" Insulex; 920 sq. ft. hot water radiation.

1925-1926—No insulation

Aug. 1	No consumption		Deg. Days
Sep. 17	15,200 cu. ft.	$ 12.22	
Oct. 16	17,600 " "	14.02	
Nov. 11	46,400 " "	35.62	
Dec. 16	98,200 " "	74.47	
Jan. 15	156,800 " "	118.42	
Feb. 16	119,400 " "	90.37	
Mar. 18	93,800 " "	71.17	
Apr. 17	49,000 " "	37.57	
May 18	32,400 " "	25.12	
June 17	10,000 " "	8.32	
July 17	4,600 " "	4.27	
	643,400 cu. ft.	$491.57	6974

1925-1926—Insulated

Sep.	No consumption		Deg. Days
Oct. 16	26,200 cu. ft.	$ 20.47	
Nov. 18	86,400 " "	65.62	
Dec. 17	92,000 " "	69.82	
Jan. 15	115,200 " "	87.22	

The House Designated as 1a

Feb. 16	112,000 " "	84.82	
Mar. 18	101,200 " "	76.72	
Apr. 17	77,000 " "	58.57	
May 19	38,800 " "	29.92	
June 17	10,800 " "	8.92	
	659,600 cu. ft.	$502.08	8090

Apparent saving—11.9%

2a.—6074

Five-room stucco bungalow 455 sq. ft. hot water radiation. Attic floor insulated—4" Insulex between joists.

1924-1925—No insulation

Aug. 25	No consumption		Deg. Days
Sep. 24	11,400 cu. ft.	$ 9.37	
Oct. 24	20,200 " "	15.97	
Nov. 24	40,000 " "	30.82	
Dec. 23	62,800 " "	47.92	
Jan. 23	70,000 " "	53.32	
Feb. 24	62,200 " "	47.47	

Mar. 26	50,400 " "	38.62	
Apr. 24	30,600 " "	23.77	
May 25	26,200 " "	20.47	
June 24	5,000 " "	4.57	
July 24	1,600 " "	1.74	
	380,400 cu. ft.	$294.04	6974

The House Designated as 2a

1925-1926—Insulated

			Deg. Days
Aug. 25	No consumption		
Sep. 24	1,200 cu. ft.	$ 1.36	
Oct. 26	27,800 " "	21.67	
Nov. 24	39,200 " "	30.22	
Dec. 23	46,000 " "	35.32	
Jan. 25	58,200 " "	44.47	
Feb. 24	45,000 " "	34.57	
Mar 25	39,600 " "	30.52	
Apr. 24	36,800 " "	28.42	
May 25	18,600 " "	14.77	
June 24	4,800 " "	4.42	
	317,200 cu. ft.	$245.74	8145

Apparent saving—28%

3a.—6276 and 6316

Six-room bungalow—650 sq. ft. hot water radiation—4" Insulex between floor joists.

1924-1925—No insulation

			Deg. Days
Aug. 26	No consumption		
Sep. 26	2,200 cu. ft.	$ 2.31	
Oct. 24	5,000 " "	4.57	
Nov. 25	37,800 " "	29.17	
Dec. 24	78,600 " "	59.77	
Jan. 27	102,800 " "	77.92	
Feb. 25	67,000 " "	51.07	
Mar. 26	58,400 " "	44.62	
Apr. 25	28,800 " "	22.42	
June 5	15,400 " "	12.37	
	396,000 cu. ft.	$304.22	6974

1925-1926—Insulated

			Deg. Days
Sep. 25	No consumption		
Oct. 26	19,000 cu. ft.	$ 15.07	
Nov. 25	41,600 " "	32.02	
Dec. 24	54,800 " "	41.92	
Jan. 26	74,800 " "	56.92	
Feb. 25	63,400 " "	48.37	
Mar. 26	55,600 " "	42.52	
May 10	54,400 " "	41.62	
June 22	8,000 " "	6.82	
	371,600 cu. ft.	$285.26	8140

Apparent saving—19%

Allowances in Calculation

In calculating the savings shown above, allowance has been made for the variations in the heat requirements of the two heating seasons. The amount of heat necessary to maintain 70 degrees in a home varies with the outside temperature and the amount of heat required for a heating season depends upon the number of degree days in the heating season.

In example 2a, 380,400 cubic feet of gas were used for a heating season of 6,974 degree days—the 1924-1925 season. In 1925-1926, a season of 8,145 degree days, the consumption probably would have been in the neighborhood of 441,000 cubic feet had the ceiling not been insulated. The actual consumption for the 1925-1926 season was 317,200 cubic feet, a saving of 123,800 cubic feet or 28 per cent.

The average heating season for Chicago is 7,091 degree days. The gas supplied is 535 B.t.u. per cubic foot.

Examples of complete insulation are as follows:

6a.—6291

Six-room two-story residence. Flaxlinum walls and roof. 915 Columbus furnace. Maintains: 74° during day, 60° during night.

1925-1926

Aug. 27	No consumption	
Sep. 26	400 cu. ft.	$ .60
Oct. 27	21,200 " "	16.72
Nov. 27	39,000 " "	30.07
Dec. 28	51,400 " "	39.37
Jan. 26	45,000 " "	34.57
Feb. 26	46,400 " "	35.62
Mar. 27	42,800 " "	32.92
Apr. 28	38,000 " "	29.32
May 27	6,000 " "	5.32
	290,200 cu. ft.	$224.51

7a.—6210

Five-rooms, Celotex walls and roof—No basement. "Celotex Bungalow." 361 sq. ft. hot water radiation.

1925-1926

Oct. 28	13,800 cu. ft.	$ 11.17
Nov. 28	27,400 " "	21.37
Dec. 29	43,600 " "	33.52
Jan. 28	48,800 " "	37.42
Mar. 1	44,200 " "	33.97
Mar. 30	36,800 " "	28.42
Apr. 28	26,800 " "	20.92
May 29	12,800 " "	10.42
July 19	3,400 " "	3.37
	257,600 cu. ft.	$200.58

Even Little Insulation Worth While

The above mentioned tests bear out the theoretically apparent fact that even a little insulation is worth while and, if possible, thicknesses of from one to four inches should be used, depending on the other materials used. Greater thicknesses than four inches of material do not make a saving enough to warrant the investment even in the less expensive materials.

The House Designated as 6a

The co-efficient of heat transmission for any wall used with an insulating material may be calculated by means of the formula.

$$C = \frac{I}{\frac{1}{S_1} + \frac{t_1}{K_1} + \frac{1}{S_2} + \frac{1}{S_3} + \frac{t_2}{K_2} + \ldots}$$

S_1, 2, etc. = surface to air co-efficients
t = thickness
K = surface to surface co-efficient

Or, roughly, by converting the conductivities of the parts of the wall to resistances by means of the formula:

$$R = \frac{1}{C}$$

Then converting the sum of the resistance to a conductivity co-efficient again by dividing this sum into one.

$$C = \frac{1}{R}$$

Although the heat transmission through walls can be cut down to .07 and .08 B.t.u. /hr. /° diff. thereby reducing the heat loss through a wall to 1/3 or 1/4 of what it otherwise might be, the total possible reduction of heat loss in a residence rarely exceeds 40 or 50 per cent as the infiltration and window losses are not materially affected by these materials. The reduction in heat loss from a building makes it possible to reduce the size of the heating plant proportionately, which, in some cases, entirely offsets or pays for the insulation of the building.

The reduction in heat loss from residence means proportionately lower fuel bills, and thereby brings gas heating within the reach of the home owner of modest income.

There are other advantages of insulation which are not to be overlooked, such as, sound deadening and especially in the gypsum and cork products it materially reduces the fire hazard.

The Home Service Department*

Details of its operation

THIS Committee has in its membership a sufficient number of Home Service Directors as to represent nearly every school of thought on the practical organization and operation of departments of this kind. At the various meetings of the Committee there is always an animated, but friendly, discussion among the members as to the relative merits of various phases of Home Service work. These incidental discussions have been so interesting and valuable to the Committee that as an experiment a special session of the Committee was held for a half day, following the regular meeting, at which time each member—and a number of invited guests from the Home Service Departments of other gas companies—related their methods of operation; the value placed upon their special line of greatest emphasis, and the results being accomplished. Each left that meeting with a broader picture of the whole scheme of Home Service work, and the following discussions are based upon information gleaned from those sources and prepared by the advocates of the particular topic treated.

How Far Can Practice of Home Service Departments be Standardized?

It has several times been suggested to this Committee that a standard handbook of manual operation

* A part of the 1926 Home Service Committee Report, Atlantic City Convention, October 11-15, 1926.

for Home Service Departments be drawn up and placed in the hands of directors of present and new departments. Although serious consideration has each time been given to this point, it has been abandoned beyond the point of preparing the general outline in last year's Committee's booklet for which credit should go to Miss Ada Bessie Swann.

The reason why no such manual could be issued is the danger of stifling initiative and the modification of plans demanded by peculiar local conditions. The various policies of the numerous gas companies each calls for a different "set up" of Home Service operations, and any attempt to standardize the work, or lay down set rules would prove unfortunate. Granting the fact that the Home Service Directors have sufficient vision to grasp their opportunities, it appears equally obvious that they will analyze their territories and organize a program to meet these needs.

Cooking Lessons and Home Instruction

However, out of four discussions there have arisen certain ideas upon which practically all Home Service Directors seem to agree as standard (in the sense of basic) practice for all Home Service Departments, unless unusual circumstances nullify their value. These are:

1. Cooking lessons or demonstrations.
2. Home instruction in cooking and the use of appliances.

As to the former, where the situation permits, we suggest that at least once a week is the minimum frequency desirable for this phase of the work—oftener if possible. In the case of home instruction, the Committee does not recommend door-to-door calls; at most we believe that this work should be limited to following up new appliance installations and service complaints. Beyond this we do not feel that any definite rules should be proposed.

Not only should the fact be borne in mind that each territory demands different treatment, based upon the intensity or diffusion of population, occupational conditions, relative wealth and such other factors, but that a certain amount of freedom should be given to the Home Service Director to specialize on those phases of work to which her personality is best adapted.

How Much Emphasis Should be Placed on the Teaching of Cooking?

The answer to this question is primarily based upon the policy or purpose adopted as the fundamental aim of Home Service work in the particular gas company. It would be entirely possible to achieve worth while results without a single lesson or demonstration in cooking if the main purpose of the work were good-will cultivation. As will be seen later, lectures before women's clubs and in schools which do not cover cooking, can produce improved public relations easily justifying the cost and effort. But if load building or load maintenance be the prize purpose of Home Service, the teaching of cooking is almost required.

The cooking load is a basic element of our business; it is the stabilizer of our demand; we need it to enable us to take on the industrial and other domestic loads of more fluctuating nature. It has been shown many times that the modern methods of living in our larger cities is tending to reduce the amount of cooking by gas in the home; and how competition of the packaged foods, the hotel and restaurant, and of other fuels is taking dollars away from the gas company treasury.

Every gas company which finds such a condition becoming a source of danger will find in the teaching of cooking a real remedy for the situation, since the revival of baking, the more adequate use of the range, and the improving of cooking methods is bound to result in the more frequent use of the gas range, and, indirectly, in the sale of higher quality appliances.

Brings Women to Gas Company Premises

One of the strong advantages of cooking lessons, if facilities permit, is the gathering of women at the gas company office where they may become better acquainted with the company and its activities and establish more personal relationship with what is often looked upon as a cold-blooded institution. The gathering of groups in this way also reduces the cost per person of reaching consumers, and within reasonable limits, multiplies the scope of the director.

This should not be taken as deprecating individual demonstrations in the homes of consumers, as these have the advantage of even greater personal contact and good-will building. By the exercise of tact and diplomacy in the handling of even the most difficult cases, the Home Service Director can win the cordiality of the feminine consumer on the common ground of cooking problems.

Cooking is essentially a feminine concern; its teaching gives the director an opportunity to exercise the genuinely sisterly appeal which should be her characteristic nature.

How Much Weight Should be Placed on Other Home Home Service Activities

The following discussions cover the four other major divisions of Home Service work (i.e. in addition to cooking instruction) which have been so ably outlined in last year's Committee's booklet, previously mentioned. The material has been contributed by the members of the Committee who specialize in these branches of work.

Club and School Work

Woman Suffrage has completely changed the atmosphere of women's clubs. Instead of either purely literary, philanthropic, educational, and social activities, you find your political group in each club. Nevertheless, when they are in the shrine of their happiness, which is the hearth of the home, their

minds still turn to the delicacies of making that shrine a haven for their loved ones.

The most successful way to get the entire message before women is having them meet with you in your auditorium where they receive the healthful suggestions of menu planning, budgeting and practical home-making. It is ofttimes said "win a man's heart through his stomach." Perhaps that is one of the foundations in attracting women to our receptions, for they too like to learn of these things over a cup of tea, dainty sandwiches and so forth.

Women Are Interested in This Work

Women are also intensely interested in knowing the correct method of using the equipment in their home. It is astounding to hear the average housewife express what she thinks is faulty fuel or a faulty appliance, and then see the amazement on her face when you point out to her that it is purely the operation that has not been properly conducted, perhaps through adjustment or not through cleaning of the appliance.

Statistics show that 92 per cent. of the money spent for the home is by the woman. Hence it is very important that we impress her mind with the possibilities, convenience and general home welfare of choosing the right house heating system which is thermostatically controlled so that there is always an even temperature in her home. The convenience of instantaneous or automatic storage water heaters, the oven heat control on the gas range and the modern way of handling cookery problems, the coziness of a radiant heater in the living room, all are pointed out as the advantages of a well regulated household which means absolute comfort to herself and loved ones, also a greater house heating load and much good-will building.

Must be Properly Approached

Experience along this line has proved that women are interested in the technicalities of the home if they are properly approached on it. The writer has been asked to give lectures before clubs on just such subjects as those previously expressed, which again is an outstanding affirmation of the minds of women. This field of endeavor is unlimited for there is much to be done in spreading the utility knowledge, especially before the political woman.

The cooking class is the real avenue of attracting the women either in group form as a club, giving each club a course of lessons as desired by them, or by getting the radio groups, business women's classes, church organizations and so forth, at the end of the course, ask each one if they are not a member of an individual group that would like to have a similar course. Your response to this is a splendid way of checking up your own activities and the value of such advertising.

Schools

Education being the maintenance factor in one's existence, is exemplified through the observation of the student or the continuous study of technical literature. Primitive man had to use observation. The modern man has both the opportunity of observing volumes of tested knowledge placed at his right hand for absorption through professional study. It has only been a very few years that the public schools and colleges have accepted the assistance of utilities and manufacturers in bringing their experience before the student bodies.

The subject of our keen interest being the gas industry, it has been most fortunate that we have seen the school traditions vanish and the acceptance of the technical knowledge that can be brought to the general science, physics, chemistry and domestic science divisions of the school. As an illustration, we can first start out with the study of geology, having the student answer where our chief fuel is coming from. It is fascinating to see the keen interest of the students as you take them down through the different sand rock strata, perhaps first finding a coal mine, delivering the coal to the gas plant, then going back to Mother Earth again, drilling for the oil or natural gas so as to enrich the coal which is turned into coke, sufficiently to produce the necessary contents to conform to the city ordinance.

The Various Gas Making and Distribution Machinery

Next step is to carry them through the transmission line, compressor stations, gas holders, pressure regulators, into the main line, service line, then through the meter and into the home. The meter is likewise as mystifying to the average student as the unseen fuel. However, a torn down meter, so that each part is visible, very soon clears up the clouds, and the student then carries home the message of the accuracy of the meter and how easy it is for mother to keep an accurate budget on the cost of each appliance that she has in the home by merely testing our said appliances with the two-foot dial on the meter. The various appliances are then taken up, teaching the efficiency of house heating, water heating, radiant heaters, incinerators, laundry equipment such as dryers, mangles and hot plates, and last but far from least, the kitchen range with the oven heat control.

By having the gas range connected with an oven heat control, it is very easy to explain the principles of thermostatically controlled appliances throughout the house. There is much detail that can be given the student in an hour and a half lecture. However, we also suggest that trips be arranged for student bodies to go through the gas plant and offices, for the student of today is the home maker and the voter, and perhaps the mayor or councilman of tomorrow. And the keen observation of these students, along with their technical school training, certainly changes the attitude of the men tomorrow regarding the utility companies and their sincerity in serving their community.

Instruction in the Home

Work of this type embraces more than instruction in cooking; it may cover the adjustment of ranges

and the demonstration of the proper use of other domestic appliances.

This Committee has several times discussed the question of door-to-door calls by Home Service Directors and has reached the general conclusion that such a procedure is usually unwise because it involves a large percentage of more or less unnecessary calls and wastes the time of the director which we believe should be concentrated on cases requiring real service.

Observation of complaints received by several gas companies shows that a large number of them are not service complaints (due to improper installation), but are rather complaints growing out of the customers' inability to operate appliances in a satisfactory manner. The Home Service Director, by following up new appliance installations can preclude such complaints and reduce those which occur later. Hence the nature of the complaints received by the gas company will guide the amount of attention given to individual calls at homes.

However, the construction side of home instruction should not be overlooked. Many incipient appliances or cooking troubles are prevented by this means, but also the visit of the director is a positive aid in generating friendliness for her company, in creating desire for more cooking and in bringing about the more frequent (and yet economical) use of other appliances.

It should be noted in passing that the desire to cover as many homes as possible should not be allowed to interfere with giving each customer real help. Sketchy service in individual calls is worse than no service at all.

Phone, Mail and Interviews

Here again the problem arises of the economical use of the director's time. There is no question but that with proper facilities the individual consultations and contacts made through telephone calls, individual letters and visits to the Home Service office by customers has an even greater binding power in making friends than unsolicited calls at homes. Nevertheless, to conserve the time of the director for her group efforts (i.e. lectures and demonstrations) which reach more customers per hour spent (and per dollar spent) too much of this individualized service should not be encouraged at the start of this work. When the director has an assistant who can take over much of the detail and handle the more routine personal contacts, then it is advisable to stress in the lectures, in the promotional work, and elsewhere, the fact that individual consultations by phone, letter or call are welcome.

However, even though the group meeting plan be occupying the major attention of the director, she should never actually discourage individual calls. The main point is to avoid becoming so swamped with detail work as to cripple her major effort.

Publicity

The public press has given unmistakable expression to its approval of Home Service and to its willingness to keep the public informed on this most popular department of the gas company's activities.

The policy and rule of some gas companies is to advertise their meetings and programs in the daily and Sunday newspapers as well as in church and other periodicals. City and society editors are always glad to accept the Home Service Department's press notices for the society and club columns and often use the material for lengthy, illustrated articles.

A special and attractive form of advertisement, two columns of five inches in size is all that is necessary to bring large crowds to the demonstrations and other functions advertised. The programs should always be published although some have expressed an opinion that the omission of the program or list of recipes to be demonstrated and to merely announce the meeting perhaps increases the attendance.

Value of Practical Demonstrations

The practical operation of gas appliances before the public and instruction by actual demonstration of the various economics that can be effected by the proper use of the ovens are not only the best means of educating the public in the proper use of gas but they bring to the gas company's advertising department opportunity to further co-operate with the interests of the public by sending to the press daily or weekly stories and accounts of the meetings. Many hundreds of these press notices during the year in the demonstration season are published for the benefit of readers and they decidedly, gradually and unmistakably present the gas company as a benefactor in the community.

Gas companies' demonstrations and lectures at the churches will be announced and reported through the press by the Ladies' Aid and other societies and these ladies will as a rule bring together a good number of women, not necessarily members of the churches, and spread the gospel of the gas company's co-operative Home Service through the parishes.

Advertising on Back of Gas Bill

Another excellent means of securing publicity for Home Service and to increase its usefulness is to advertise on the back of the gas bills, always giving, however, a recipe in conjunction with the advertisement. An attractive small illustration of the gas company's novel kitchen from actual photograph and the same illustration of larger size should be given out periodically to the incoming classes taking domestic science at the public schools. These beautiful pictures are taken home and please thousands of mothers, while the larger size is framed in the cooking school room and speak volumes for the gas company. In one city, New Haven, the Board of Education has given a written order to the gas company authorizing its Home Service workers to visit the school cooking classes and to co-operate with the teachers in securing efficiency in the use of gas cooking, baking and water heating appliances.

The monthly and weekly publications such as those of the Chamber of Commerce, high school magazines, etc., are also excellent media for promulgating Home Service and showing up its useful service to the community.

General advertising literature, booklets, circulars, leaflets, etc., furnished by manufacturers or printed by the gas company should be supplemented by booklets, recipes, cooking charts, etc., relating to Home Service.

Window and office signs and salesroom advertisements should always include some reference to the cooking demonstrations or meetings or doings of Home Service Departments. And radio has more than proved its effectiveness as the means of reaching immense audiences and thus securing publicity.

Building a Rate to Build the Business*

The rate question is analyzed in detail and a solution is suggested

Charles S. Reed

Consulting Engineer,

IN the gas business we rarely have the opportunity of building from the ground up, for we already have a structure and our job is a remodeling and supplementing one rather than a true building operation. However, a remodeling job often requires much more care than a new building, for we run the risk of bringing our entire building down on top of us.

On examining into the details of our present structure, we find it is a queer looking thing as an almost universal rule. Imagine for the moment that the foundation of our building represents the gross revenue of the company, the collections from our customers. This revenue foundation supports, first, the walls, which represent the operating expenses and, second, the roof which represents the net earnings or return, our protection and our shelter from the elements.

What an Analysis Shows

What does the magnifying glass of a cost analysis reveal? You have often been told that one-third of the customers of the average gas company fail to pay the bare operating expenses necessary to render service to them. On one side of our building, therefore, the foundation supports only about one-half of the wall, leaving the remainder of the wall and its portion of the roof as a drag upon the other parts of the building.

The second side of our building represents another thirty per cent of the customers paying operating expenses but not a fair return. On the second side of our building, therefore, the foundation supports the wall but only a small part of the roof.

There is a third group of the customers, comprising another thirty per cent, using from two to ten thousand cubic feet of gas or more a month and constituting what might be called the backbone of the business. These customers contribute enough to not only pay their own way, but to make some contribution over and above a fair return, thus counteracting some of the deficits of the other two classes. On the third side of our building, therefore, we find the foundation not only supporting its share of the wall and roof, but holding up some of the share of the first two sides.

Industrial Consumers

A fourth group of customers, comprising the large hotel and industrial users, also more than pays its own way. The share which this fourth group has in taking care of the deficits of the first two classes depends to a large extent on the size and nature of the company and the degree of competition. In one company this group is found to be contributing over forty per cent of the net earnings of the company, while in other places, where competitive conditions differ, the percentage is not quite so high, more reliance being placed on the steady users of smaller quantities in group number three. Returning to our analogy, we find our fourth foundation supporting its share of wall and roof and also helping to carry the load properly belonging to the first two sides.

If we take any side of our building and make a microscopic analysis, we find widely varying conditions as regards individual elements. For instance, on one company recently analyzed, we found it was losing twelve per cent on some customers using five hundred cubic feet or less of gas each month, even when due consideration was given to the high diversity factor of that type of customer. It was also found that a customer using three thousand cubic feet of gas per month on a high load factor paid a higher rate of return than a ten thousand cubic feet customer with a low load factor. Also the range of return on customers using five to eight thousand cubic feet per month was from five to twenty-five per cent instead of the fair return of

* Delivered at the Thursday General Session, A. G. A. Convention, Atlantic City, N. J., October 14, 1926.

eight per cent. So we not only have unequal loads on our different foundation walls, but variable and uncertain conditions exist in each wall.

Competitive Conditions

If, in our further research for information, we dig down below the foundations in order to find the nature of the soil on which they rest, we find the very opposite of what might be expected from our previous analysis. The ground beneath our building represents competitive conditions, the strength or weakness of which will have as much to do with the size of the foundation and its load as any element which is brought out in a cost analysis. Under the first foundation, the one which is not supporting anything like its share, we find a very firm subsoil. Competition is light as regards this class of business, comprising the small convenience users of our service, and it is well able to pay its own way.

The firm soil continues on under the second side of the building, but under the third side we find it getting weaker due to the competition of coal-fired water heaters, coal ranges and the ever-increasing undermining activities of our electrical brethern. A similar and even more acute situation exists as regards the industrial business forming the fourth side, so that the two foundations which are the main support of our roof of net earnings are the ones most threatened by the unstable subsoil of competition.

There are two ways of tackling our building job. One is to build additions to it in the way of new business until the shaky portion of our roof is braced by these surrounding additions. The second method is to remodel the present structure.

Rate Cutting

In going after the new business we often find competitive conditions are such that we have to cut rates. This cutting of rates often loses as much net revenue from our present customers as we gain by the new business and therefore we are no better off than before. One possible solution for this is class rates and plenty of them. The manager of a combination gas and electric company thinks nothing of having twenty or thirty electrical rates while his gas schedule has only one or two pages. Incidentally, sometimes the net earnings of his two departments are in the same ratio. We should have more gas rates. We are justified in selling gas to present customers at $1.00 a thousand and at the same time offering to sell to new customers or for new purposes gas at 50 cents a thousand. Any rate which will pay the additional operating costs and overhead plus some small contribution toward the support of the common overhead—our roof of net earnings—can be justified not only from the standpoint of the company but from the standpoint of the customers who are paying the higher price. The only things that we have to keep in mind are the ultimate possibilities of such a rate and the chance of offering different rates to two customers who are in the same line of business and competing with each other. If you have a roof that is in danger of falling and you have a shifty subsoil on which to brace it, you are justified in building only as heavy a foundation for your new wall as the soil will bear. Similarly, in building a gas rate for new business you are justified in asking for only enough revenue foundation to support the added wall of operating expenses, plus its own special overhead, plus whatever share of additional net earnings or roof that the subsoil of competition will permit. If 80 cents will more than cover the added cost and overhead of house heating load, we are justified in making a rate which will average that amount, even though our lowest industrial rate averages 90 cents or more.

New Rates Not Always Effective

However, new rates for new business will not prove the salvation of every gas company. Some of them find that competition is getting keener as regards the customer using from two to ten thousand cubic feet each month, the group which comprises the third side of our building and which forms the backbone of the business of many a company. Some companies can possibly continue to collect a twenty per cent, thirty per cent or forty per cent return from some of these customers in order to make up for the losses on the first and second groups. Others will find it increasingly difficult. Even if they are not losing any of this class of business they certainly cannot hope to get much additional water heating and other highly competitive loads on the kind of rates now generally in effect.

Optional Rates

Optional rates have been suggested—not special rates for special classes of business, but optional rates for the larger domestic customers. They do not seem to be the solution. Some doctors tell us all ills and ailments come from the spine and if you have a sore on your little finger they treat your backbone. Possibly they are right and I take no issue with them, but if some one tries to tell me you can cure a backache by rubbing salve on your little finger, I feel justified in making a few remarks. Putting into effect an optional rate that applies to only ten per cent or at the most twenty per cent of your domestic customers is not going to cure the ills of the other eighty per cent or niney per cent. You are just rubbing a little salve on a small part of your anatomy in the hope of curing an internal trouble in another and more vital part. As long as you are losing money on a big percentage of your customers you must include that loss as a surplus profit in your optional rates and when you do so you make the rate too high to meet competition and get additional business. The bulk of your customers are around and below the two thousand or twenty-five hundred cubic feet per month mark. In order to get water heating business, the charge for all gas over two thousand cubic feet will therefore have to be $1.00 or less, depending upon local conditions.

Lowered Rates Ineffective

The ordinary block rate does not appear to offer a solution to our rebuilding problem, for it, too, fails to do justice to the bulk of the customers or to solve our competitive situation.

A general decrease in rates will not help. We will find that we will not do more than make up the loss in gross, if we are even able to do that.

We know, however, that we need low rates for additional business and to keep our present load. Suppose therefore we pick out a rate equal to one-half or two-thirds of our present meter rate. That is, if you have a rate of $1.50, pick a rate of less than $1 and if you have a rate of $1 pick a rate of about 60 cents. Obviously such a rate, applied to your present sales, will yield considerably less than your present earnings, so let us divide the rest of the necessary revenue equally among the customers with what is generally known as a service charge but which is more truly a community charge, since it represents part of the customers' share of the common or community expense that forms so large a portion of the cost of utility service. So much has been written and said concerning this form of rate that I will not trouble you with further details but will merely summarize as follows:

The Service Charge

A comparison of the effect of various equivalent rates upon the bills of a number of representative customers, whether made from a cost analysis standpoint, or from the standpoint of justice to the customer, or from the viewpoint of desirability to the customer, or on a competitive basis, will indicate the community charge in some form or other as the only solution to our remodeling problem. It is the only type of rate which adds to the revenue foundations under both the first and second sides of our building and makes them carry some share of the roof.

Immediately, however, we run against the snag of the supposed unpopularity of that form of rate. Many of you gas men tell us it is not expedient to put any form of community charge into effect. How do you know? What experience have you had with the installation of community charges? There will be plenty of answers to that question so we will limit it by excluding any so-called service charges that were installed as increases in the average overall rate, service charges that came as added charges for which the public received nothing additional. We will further limit the question by excluding all service charges of less than $1 per month and then we will ask the question again: "How many of you gas men have gone to your domestic customers on an even trading basis and offered to swap a gas rate of less than $1 per thousand in exchange for a community charge of over $1 a month?" How many of you have given your customers an even break, a chance to learn that a community charge in its true form means a low commodity rate and an opportunity for the poor man to make his house as clean of the cinders and dirt of other fuels as the home of the well-to-do citizen. My one suggestion today is that you try such a method, not necessarily publicly, but privately on a small group of friendly customers, including some that will have to pay more on the community rate. Calculate a rate which will yield the same total revenue as you are now getting from your domestic business but which will have a community charge of over $1 a month. Explain to the small group of customers that the increases in some bills are not going into the money bags of the company but are going back to the community in the shape of decreases in the bills of the other customers. Show them that a $1.50 community charge will not increase any more bills than a 25-cent service charge.

Further Trials With Plans

After you have experimented on the small group of customers, explain the trial rate to some of your employees and get their reaction. Then, and not until then, try it on your company officials. The reason for suggesting this queer order of things—customer first, then employee and then officials, is that experience has taught me it is easier to sell a $2 community charge to the crankiest customer on the mains of a gas company, even if that customer happens to be a woman, than it is to sell a 25-cent service charge to the average gas company official. The customer looks at the question from the viewpoint of the service he is getting and the chances of more service and cannot help but choose a community rate as being best for his town. On the other hand, the company official seems to look only at the grief that he thinks will come to him. Therefore it is suggested that you try it on some customers first and learn it is not as hard to sell as you imagine.

Sometimes the community charge is made a little more palatable by sugar coating it in a first few hundred rate. The only objection to this scheme is the tendency to include too much gas for too little money and by the time four or five hundred feet of gas have been included in the minimum charge, much of the community effect is nullified. For instance, take the following rate:

For the first 500 cubic feet or less, $1; for all additional gas, 12 cents per 100.

The inclusion of the five hundred cubic feet at 12 cents per hundred means a 60-cent commodity charge included in the dollar so that only 40 cents is left to cover the common cost. It is all right to sugar coat the pill but don't add so much sugar that you nullify the medicine and give the patient indigestion.

If instead, the rate is made to include only two hundred cubic feet for $1.20 or more, the charge for additional gas can be cut to 10 cents a hundred or less.

The Three-Part Rate

Twenty minutes of my time have passed and no mention has been made of three-part rates. I see no necessity for mentioning them. If you sell a community charge of more than $1 a month, you won't have to sell a three-part rate. It will sell itself. One of the arguments you will have to meet when you

sell the community charge is that the customer requiring larger mains and meters and who uses gas at high speed should pay a bigger community charge than the small demand customer. Your only answer is to graduate the community charge according to the amount of service required and immediately you have the three-part principles. Possibly the means of graduation will be only an approximate one at first, such as meter size, floor area or number of rooms, for these methods are justified until some such time as your commodity charge gets close to the bare production cost of gas. For instance, the use of gas service may not be in exact proportion to the number of rooms in the house, but the paying ability of the customer generally bears a relation to the number of rooms he occupies and we are therefore justified in asking the mansion to help the bungalow. This follows the law of what the traffic can most easily bear. Not the law of "what the traffic will bear," for this is generally interpreted as the most that can be extorted from a down-trodden public. On the contrary, "what the traffic can most easily bear," means the easiest method of distributing a given burden. Then, too, the use of a room basis causes a less number of suctomers' bills to be increased so that a high community charge increases a less number of bills than a 25-cent service charge. Incidentally, one important feature of a room rate is that you have translated your rate into the language of the customer and it is therefore easier to sell.

In conclusion let me urge the introduction of more rates based not only on cost analysis but also upon what the traffic can most easily bear, rates which provide foundations ample enough to carry their walls and as much of the roof of net earnings as the subsoil of competition will permit. At the same time, we should not neglect our present structure lest the main supporting foundations be undermined and lost. It is not the big customer that requires the most attention for he is in a position to demand and get all he needs. It is the customer using from two to ten thousand cubic feet of gas each month that is entitled to prompt relief and the only way we can give it to him is by means of equitable rates.

Refrigeration by Gas*

1926 committee report contains details of refrigeration symposium

H. D. Valentine
Chairman

THE 1925 report of the Refrigeration by Gas Committee under the title, "Refrigeration With Gas—Why and How," was received with such enthusiasm as to be highly complimentary to the Committee. It is, of course, enthusiasm such as this, especially if it becomes general, that will ultimately result in the attainment of any desired goal. In our case that goal, of course, is the promotion of refrigeration with gas to a point where not only the connected gas load due to the acquisition of such a business will become a noticeable factor in the send-out of any particular company, but also that profits derived from merchandising refrigeration units will constitute a substantial integer in the total net profits of any merchandising organization's annual business.

It cannot be expected that this year's report will be anything nearly as comprehensive as the 1925 paper, inasmuch as the previous report was very elementary in form, and was written primarily to introduce a rather difficult subject in such a fashion that progress could be followed in an intelligent manner by all interested. This report, therefore, must be regarded as a progress report, constituting an appendix to published material now available on the subject.

Refrigeration Today and in the Very Near Future

Ever since the report of the Committee published in October, 1925, which contained among other things, a chapter on newly developed refrigeration units using gas for a fuel, the Committee has been bombarded with letters requesting further information on these units, especially the approximate date that such units would be available for sale. Impatience has been acute. The reason for delay in promoting these gas-fired units and the irritating slowness with which progress is apparently being made formed the topic of a paper read by a member of this Committee in which a pertinent paragraph might be illuminating:

"Obviously, the first requisite for the ultimate successful nourishment of our "refrigeration with gas infant," is a type of machine which, although it may from time to time require servicing, should be backed by an organization of enough capital to supply the necessary man power to give effective service at all times to a clientele of customers whose purchases are practically all made on the deferred payment plan; and further, manufacturers who can merchandise to established dealers by giving these dealers discounts of such interest to enable them to give the character and promptness of service that a discriminating public demands."

* Presented before the Commercial Section, A. G. A. Convention, Atlantic City, October 11, 1926.

(Editor's Note: Due to lack of space this report has been considerably abridged. It can be obtained in full from the A. G. A.)